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AN ESSAY TOWARDS A VINDICATION OF THE VULGAR EXPOSITION OF THE *Mosaic* HISTORY OF THE *Creation of the World.*

In Several LETTERS.

By *JOHN WITTY*, late of St. *John's* College in *Cambridge.*

Sumite materiam veſtris, qui ſcribitis æquam
Viribus, & verſate diu quid ferre recuſent
Quid valeant humeri. ——— Hor. de Art. Poet.

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THE

PREFACE.

IF Moſes's *Hiſtory of the* Creation *is not to be literally interpreted, then neither is that of the* Fall; *and if the* Fall *is a piece of Mythology, then ſo is the* Redemption; *and if the* Redemption *is a Fable, then welcome* Deiſm, *and farewel reveal'd Religion. This method of Argumentation very many think concluſive; and ſome from hence venture to gueſs at the deſign of thoſe who deny the firſt of* Geneſis *a literal conſtruction: They look upon it as their end, in ſuch conduct, in one conſiderable part of it, to undermine the whole Bible; in the firſt of* Geneſis *to invalidate the authority from end to end of both the Old and New Teſtament.*

'Tis true, this inference is ſevere; and yet 'tis what is thought by Men not very

rigid in their Cenſures, but too apparently concluſive. 'Tis certain, they who diſbelieve Revelation, make uſe of this conduct to vindicate their Infidelity; concluding, that if one part is no better than fabulous, they may juſtly look upon the whole of the Bible as of the ſame ſtamp; eſpecially when that part ſeems to be as plain a Hiſtory as any in the World: And thoſe who expoſe Moſes in his firſt Hiſtory they brag of as their Patrons; as who diſbelieve Revelation themſelves, and endeavour to run it down, and thereby to gain credit to, and bring Deiſm *into vogue with others.*

Many of thoſe who are duly concern'd for the honour of Revelation, look upon it as impoſſible, that they who have any regard for it ſhould act ſo much in its prejudice, as is done in allegorizing, and putting wild conſtructions upon this and other parts of it: They think that no Man who values it will dare to ſubject the Bible to vain Philoſophy; to run it out of one ſenſe into another; out of its obvious and natural, into Conſtructions forc'd and chimærical: In a word, ſo far to wreſt it from its common ſenſe, as at laſt to make it Nonſenſe; becauſe in its firſt and moſt ſimple Conſtruction, it can't be made to comply with

with ſome of their own Fancies. This they look upon as an evidence of the greateſt diſeſteem for the ſacred Writings; as a ſetting up of an URIM *and* THUMMIM *in their own imaginations, in oppoſition to thoſe* LIVELY ORACLES *which God in his mercy has vouchſafed to communicate to the World.*

And they who in their Cenſures in this caſe uſe moſt moderation, wiſh that what has been of late unhappily put upon Moſes, *had been let alone: Tho' they hope that thoſe concerned againſt him did not deſign* Deiſm *in the concluſion, yet they are fully ſatisfy'd, that the methods they have taken tend as directly as any to its eſtabliſhment, and that almoſt nothing goes farther in tainting the credit of what follows, than either the ſubverting the ſimplicity, or endeavouring to run the firſt Chapter of the Bible into allegory.*

And for the Judgments they paſs in this caſe, they think they want not very weighty Reaſons. Moſes's *firſt Hiſtory they are ſure appears in a dreſs of wonderful plainneſs and ſimplicity, and therefore they think it challenges a literal Interpretation as ſoon as any part of the Bible; and if it can't*

have it, they know not which part of the Bible can. Certainly not the Hiſtory of the Fall, *which was writ at the ſame time, is evidently of a piece with, and conſequently can have no better title to be conſtru'd literally than that of the* CREATION. *Indeed, moſt who allegorize the Creation, do the ſame by the Fall too; ſeeing a neceſſity if they recede from that of the former, of giving up the obvious Interpretation of the later: And if this be admitted, it ſeems a matter of ſome difficulty for our Religion to keep its ground.*

For ſuppoſing the Hiſtory of the Fall *Mythological, that it can no more challange a literal Conſtruction than* Eſop's *Fables; they think we have no other account of any Fall than what is derived from it; and what elſe we hear of a Fall in other parts of Scripture, they judge of the ſame nature with it: Whereas, as is the* Fall, *ſo is of neceſſity the* Redemption *from that* Fall; *as in* Adam *all die, ſo in* Chriſt *are all made alive; and conſequently, if the* Fall *is a Hieroglyphic, what is the* Redemption *better than a Riddle? If the* Fall *is an unintelligible piece of Fancy, they know not what to make of the* Redemption *better than Knight-Errantry. As for the Reaſons*

which

which they give for their conduct who are moſt concern'd in the caſe before us, they look upon 'em as inconſiderable; as what would not warrant proceedings of infinitely leſs conſequence, much leſs ſuch as ſeem to be very dangerous in matters of the greateſt moment.

I muſt confeſs my ſelf to be of the opinion of theſe laſt Gentlemen; tho' I don't think thoſe learned Men, who have made too free with Moſes, *ſuch as endeavour the promotion and propagation of* Deiſm; *yet I am fully perſuaded, that as they have dealt with the* Moſaic *Hiſtory, they have* given great occaſion to the Enemies of Revelation to blaſpheme: *They have unawares rais'd up ſuch a Spirit of Infidelity in our Nation amongſt ſuch lighter Wits as are capable of reading their Arguments, but can't confute 'em, as will not, 'tis to be fear'd, be ſo eaſily laid again: How high the Vein runs now, I have in ſome meaſure experienc'd; and I find that what motions Men imbibe with pleaſure, 'tis no eaſie matter to rid 'em of.*

An attempt in ſome meaſure to put a ſtop to this growing Miſchief, is the deſign of the following Letters; to re-aſſert Moſes's *right*

right in the Hexaemeron to a ſimple Hiſtorical Dreſs; and to take off thoſe Exceptions which have been made againſt the obvious Expoſition of the Hiſtory of the Creation. This I can't ſay that I have yet ſeen fully done, tho' ſome things have been well ſaid upon the ſubject by ſeveral ingenious Men; and yet, methinks, 'tis a thing which would not be left undone, inaſmuch as without doubt if none appear in vindication of him, Moſes *will be look'd upon as incapable of being literally expounded; and as long as this is ſo, 'twill not only ſettle thoſe in* Deiſm *who are gone over to it, but new Proſelytes will continue daily to be made.*

And what has farther encourag'd me to appear in this cauſe, is this; beſides a great deſire I have to ſee Revelation triumph, which I am ſenſible ſuffers in a tender part in the treatment which has befallen the former part of Moſes's *Writings, a ſettled conviction, that no material Difficulties have yet been offer'd againſt the Hexaemeron in its vulgar Expoſition; which makes me think it not only a pity, but a ſhame, that ſo good a Cauſe, ſo weakly oppos'd, ſhould be given up, and ſuffer'd to ſink under nothing.*

I hope

The Preface.

I hope the following Letters will in ſome meaſure anſwer the end I deſign 'em for; that they will vindicate Moſes *in his obvious Expoſition, and therein break up what I look upon as one of the very ſtrongeſt holds of* Deiſm. *If they do thus much, I ſhall think my time excellently well ſpent in writing 'em; if not, I wiſh they may put ſome abler Pen upon engaging in this noble Cauſe: Certainly no ignoble one, to appear in defence of Revelation, to anſwer what it is charg'd with, and to expoſe the Vanity and Extravagance of every thing which appears in prejudice of it.*

A word or two upon ſome Particulars in the following Papers, and then I have no more to ſay by way of Preface. I think I ſufficiently re-eſtabliſh'd God's immediate Operation in the formation of the World in my firſt Letter: I have anſwer'd what Mr. Whiſton *objects againſt it, which I take to be a ſufficient re-eſtabliſhment of its truth. The Reader may, if he pleaſe, for a farther reaſon why God took up ſo much time in the Hexaemeron, notwithſtanding he made no uſe of ſecond Cauſes in the formation of the World, add to what I have offer'd againſt Mr.* Whiſton's *firſt Exception, what*

I inſiſt

I inſiſt upon in the 7th Letter, in vindication of God's taking up five Days in our Earth, notwithſtanding he allow'd but one to the creation of Sun and Stars: It holds as well here as in the caſe I brought it for; and, in my opinion, is no inconſiderable Argument.

Upon what is offer'd in the ſecond Letter much more might have been ſaid: Indeed, to treat of it at large, would require a Volume; but brevity is the beſt where it may conveniently be had; and I think what I have there in ſhort offer'd, ſufficiently anſwers my end.

From the third to the laſt, I have taken the word Vulgar *in a leſs obvious Expoſition, in order to reconcile* Moſes's *Hiſtory with Philoſophy; which nevertheleſs is not inconſiſtent with the Letter, but may be true without any prejudice to the Hiſtorian, as what I have hinted upon occaſion makes it appear. This Explication I don't contend for; indeed what I have offer'd in the 7th Letter, ſhews that I incline far more to the other. However, I have taken ſome pains about it, in order to let them ſee, who will ſubject* Moſes *to Philoſophy, that in ſuch a conſtruction as may juſtifiably*

be

be call'd literal, he is very conſonant to it. This, if any thing, muſt reconcile Moſes *with the* Deiſt *as an Hiſtorian, tho he deny what is advanc'd before, and will ſubject the Work of the Hexaemeron to ſecond Cauſes and Philoſophy.*

How I have come off upon this occaſion, 'tis not for me to determine; only I am of opinion, that the Hypotheſis of a conſiderable time intervening 'twixt the impreſſion of Motion on the firſt Matter and the appearance of Light, ſo much as gave the Planets time to come to a tolerable conſiſtency, and to revolve upon their Axes, (the firſt appearance of Light being the tendency of the Sun and fix'd Stars towards ſomething of a perfection) ſolves very intelligibly the moſt material Philoſophical Difficulties in the Hiſtory: Hence we are able to account for the firſt, ſecond, and third Days and Nights; which I can't ſay any have Philoſophically accounted for before me. Hence we can account for the ſecond and third Days Works, as they were conſiderably brought on in the time intervening 'twixt the appearance of Light, and the Creation: And on ſuppoſition that all the Bodies in the World were working off from the beginning, the monſtrous Aſſymetry

try quarrell'd with in the fourth Day's Work, vaniſhes into nothing, and the creation of the Sun and Stars on that Day is render'd of a piece, as to proportion, with the reſt of the Hiſtory.

The Deiſt *can't quarrel with me for not admitting ſecond Cauſes totally in the third, fifth, and ſixth Days Works; inaſmuch as I have already ſhewn it a thing utterly impoſſible that they ſhould ſo take effect: All the powers of Nature could not form an Animal or Vegetable either in Embryo or Perfection; therefore God had neceſſarily an immediate hand in theſe caſes. In what condition he conſign'd 'em over to Nature, we can't tell; we may conclude in a ſtate conſiderably nigh perfection, from the ſhort time in which ſecond Cauſes brought 'em to their full growth.*

Since I writ what I have advanc'd on the third Day about the diſcovery of the height of Clouds in a Thunder-ſhower, which proceeds upon the time allow'd by the Florentine *Virtuoſos for the propagation of Sound; I find that* Mr. Newton *differs from them in the time of its propagation, and allows it but to move* 968 *Feet in a Second of time. Now ſuppoſing this, if there paſs 'twixt the Lightning and the Thunder*

Thunder 10″, *then the Clouds are* 9680 *Feet high, or* $1\frac{440}{528}$ *Mile: If there paſs* 20″, *or* $\frac{1}{3}$ *of a Minute, then they are* 19360 *Feet high, or* $3\frac{313}{528}$ *Miles: If* $\frac{2}{3}$ *of a Minute, which perhaps is the longeſt ſpace twixt the Lightning and the Thunder, then the height of the Clouds is* $7\frac{176}{528}$ *Miles: Or if* $\frac{1}{2}$ *of a Minute, which perhaps is nigh the mean twixt the greateſt and the leaſt ſpace of time that paſſes, then the height of the Clouds is* $5\frac{264}{528}$ *Miles: And knowing the height of the Clouds, we may diſcover the time the Water takes in deſcending, upon ſuppoſition that the Lightning, and Thunder, and Rain ſet out all together.*

And now I have no more to do but to commit what follows to the Cenſure of the candid Reader. If it anſwers what I aim at, I have my end; if otherwiſe, I miſcarry in a good Cauſe: If it ſucceed in part, and in part prove imperfect, till I can anſwer what ſhall be charg'd upon it, I muſt beg its preſent favourable acceptance in the words of Horace:

—— Amicus

The Preface.

——— Amicus dulcis, ut æquum eſt,
Quum mea compenſet vitiis bona pluribus hiſce,
Si modo plura mihi bona ſunt, inclinet; amari
Si volet: Hac lege in trutinâ ponetur eâdem.

Hor. Satyr. Lib. 1. *Sat.* 3.

ERRATA.

PAge 19. Line 24. r. *ſeems to prove.* p. 21. l. 1. r. *Reflection.* p. 47. l. 5. inſert *God.* p. 80. l. 22. r. *diſpers'd.* p. 94. l. 12. r. *pro.* p. 101. l. 10. r. *Semidiameters.* p. 103. l. 17. r. *ways.* p. 115. l. 8. dele *great.* p. 128. l. 12. after *Mechaniſm,* inſert, *for the Rays of the Sun.* p. 131. l. 8. r. *Seminal.* p. 134. l. 2. after *which* r. *is.* p. 163. l. 7. for *of that* r. *to that.*

LETTER

LETTER I.

SIR!

YOU wonder why what has appear'd in public upon the matter, has not yet diſſuaded me from adhering, with ſome others of our Acquaintance, to the vulgar Expoſition of the Moſaic Hiſtory of the Creation of the World: As for the other Gentlemen, I muſt leave them to anſwer for themſelves, and I am confident they are able to give an account of their Conduct. The Reaſons I proceed upon, as you deſire them of me, I will give you in the beſt method in which they occur to me; and I will endeavour to eſtabliſh every one of 'em at leaſt ſo plauſibly, as to warrant a ſuſpenſion of my aſſent to all new Fancies, till I ſee the old way cumber'd with more and greater Difficulties than have yet been laid before me.

I muſt confeſs, I have always had the higheſt veneration for this noble piece of Hiſtory; this it challenges as it comes

LET. I. from God, and it is ſtill naturally the more valu'd, as it contains matter of fact of the remoteſt antiquity; matter of fact which every one muſt naturally take delight in knowing, and which we can't but be the more choice of, as we had never come to the knowledge of it, had it not been reveal'd to us by God Almighty; and as it is a Hiſtory, I think, we may ſee the Character in it very clearly of the moſt unaffected plainneſs in the World; this makes me unwilling to part upon eaſie terms with its literal Interpretation, which given up, in my opinion, would render it an uſeleſs Piece of inſignificancy; at leaſt, if ever I give it up, it muſt be upon greater Reaſons than I have yet to part with it: I think what has yet appear'd againſt it very far from ſubverting its obvious ſenſe.

Not that I preſume to promiſe my ſelf, that what I ſhall offer upon this occaſion will reconcile you, much leſs thoſe who are more engag'd than you againſt it, with the vulgar Expoſition of the Hiſtory of the Creation. We are all taken with Novelties, and there is no Novelty more taking than a new Notion. However, I may promiſe my ſelf ſomething conſiderable from what I have to offer; you, at leaſt, will be thence ſatisfy'd, that it is not

not out of prejudice that I ſtill continue LET. I.
to embrace the old way; and poſſibly
what I ſhall advance upon this occaſion
may in time bring ſome over again, who
are now at odds with it, to the literal
Expoſition. New Conceits take a while;
but then as they have a birth with
moſt things that have ſo, 'tis obſervable,
that they have at the longeſt but a ſhort
life: We have ſeen ſeveral riſe and fall
in not many Moments; and I don't know
that thoſe in the caſe before us are ex-
empt from the like fate with the reſt of
their Brethren.

The principal Reaſons which I inſiſt upon in this caſe, are theſe:

Firſt, *That all the Exceptions made a-* I.
gainſt the vulgar Interpretation of the Moſaic *Hiſtory, are Philoſophical, and conſe-*
quently Precarious; as they take what is
not yet proved for granted, that the Laws
of Nature took place in the formation of the
World, as recorded by Moſes.

Secondly, *That, admitting the Laws of* II.
Nature to have took place upon that occa-
ſion, ſtill we have not ſo much evidence for
matters in Philoſophy, as with reaſon to
make 'em a Teſt whereby to try the truth of
ſacred Scripture. And,

Thirdly, *That tho' we ſhould ſuppoſe it* III.
reaſonable to make Scripture accountable to

LET. I. *Philoſophy, the Exceptions againſt the vulgar Expoſition are ſtill anſwerable; there being nothing in this Hiſtory, as vulgarly expounded, which runs counter to the beſt Philoſophy.*

If theſe Particulars are true, then I hope you have a Reaſon for my Conduct in the caſe before us; and that we have no ſmall reaſon to believe 'em true, it ſhall be my buſineſs to attempt to ſhew in as ſhort a compaſs as I can. Upon the two former Heads I ſhall be very ſhort; the laſt is of the greateſt extent, and will require to be more largely inſiſted upon.

I. As to the firſt, you will grant, that the principal difficulties rais'd againſt the vulgar Expoſition, are Philoſophical; they are therefore Precarious, if the Laws of Nature took no place in the formation of the World, as recorded by *Moſes*; and that they did not, it has been the general ſenſe of *Jews* and *Chriſtians*, till within theſe few Years. This great Doctrine has been queſtion'd but by very few, and thoſe but of yeſterday; and they who have queſtion'd it, have rather done it by way of Poſtulatum, in order, upon its admiſſion, to advance ſome Fancies they had hit upon, than that they could give any Reaſon why they queſtion'd it.

They

They who believe that the Hiſtory of the Hexaemeron includes the whole World; that it either expreſſes or implies the then firſt entrance into Being of no leſs than the whole viſible and inviſible Creation; believe at the ſame time, that this great Work was carry'd on by the immediate Interpoſition and Operation of infinite Wiſdom: And they who only take in the material Creation, in this reſpect, believe the ſame. And of one of theſe two Opinions have almoſt all Men been, who have heard of, and given any credit to the *Moſaic* Hiſtory: All Men till of late Years; and thoſe who have vented new ones of late, have not been many. LET. I.

Only it has been fancy'd by ſome, that the Hiſtory of the Creation, as recorded by *Moſes*, extends no farther than our Planetary Syſtem: And the ſame Hiſtory by others has been contracted within the compaſs of our Earth, with its Appurtenances: And they of both theſe Opinions have imagin'd the Operation of ſecond Cauſes in the Hexaemeron: Whereas this is but to imagine; and may we not with far better reaſon imagine the contrary? We may, if the univerſal ſenſe of Mankind is preferable to the private Opinions of ſome few Perſons; at leaſt, *V. Whiſton on the Moſaic Creation, p. 68.*

LET. I. if we will not grant 'em this Poſtulatum, that the Laws of Nature took place in the Hexaemeron, we muſt believe that they did not, till we can ſee them prove that they did: That is, we muſt believe it yet, inaſmuch as this great point has hardly, as far as I can ſee, been attempted to be prov'd.

Theſe Conſiderations make me think it unneceſſary to go to prove directly the Work of the Hexaemeron, the reſult of the immediate Operation of God Almighty: This Doctrine has had the poſſeſſion even from the beginning. They therefore who oppoſe it, are bound to produce ſubſtantial Reaſons why they deny it; whilſt they who defend it, juſtly look upon it as true, till they ſee reaſon from its Opponents to diſcard it. *Poſſeſſion gives Right, till a better Title to the Right of Poſſeſſion appears. As therefore the Doctrine I contend for has all along had the Poſſeſſion, we muſt believe that it has the Right on its ſide, till its oppoſite is made evidently appear to have a better Title. I ſhall therefore not ſcruple to look upon this Propoſition, that God operated immediately in the Work of the Hexaemeron, as true, till I ſee it diſprov'd; and accordingly, till then, I muſt conclude, I think with reaſon, that

no

no Philoſophical difficulties can warrant our receding from the vulgar Extent and Expoſition of the *Moſaic* Hiſtory. LET. I.

Indeed, I have met with two Objections againſt this Doctrine, which I look upon my ſelf as obliged to anſwer before I leave this Head. The former is this; That had God immediately operated in the Hexameron, no reaſon can be given why he did not effect it in a Moment; it ſeems more agreeable to his infinite Power ſo to do; which inaſmuch as he did not, 'tis a fair intimation that ſecond Cauſes had a hand in the Caſe. Whereas, becauſe we can give no reaſon for this, does it therefore follow, that God Almighty had no reaſon for it? Till this can be prov'd, what is offer'd is invalid; and as I deſpair of ever ſeeing it prov'd, I can't but look upon this Argument as of no force. *V. Whiſton on the Moſaic Creation, p. 51.*

Beſides that, poſſibly, a reaſon may be given for it; tho', ſuppoſing the contrary, what I have offer'd already is nevertheleſs concluſive. There are who imagin, that the reaſon why God Almighty took ſome time in bringing to perfection the material Creation, was in order to let the intellectual Beings which he made before, better into the nature of it, in order to let 'em ſee into the Philoſophy of it; which could be no way ſo ſoon

LET. I. done, as by ſhewing 'em its progreſs out of an irregular confus'd Chaos, into an harmonious and beautiful World: Or be this as it will, (for I won't lay much ſtreſs upon't) this we are ſure of, that inaſmuch as God Almighty was pleas'd firſt to create the World in a Chaotic condition, and thence, for reaſons beſt known to himſelf, to reduce it to what it is at preſent; it is no preſumption to ſay, That in its reduction it might of neceſſity take up a determinate portion of time: It muſt have been reduc'd out of a confus'd Heap into a regular and beautiful World by motion: Motion implies Succeſſion; Succeſſion Time; and conſequently the formation of the World out of a Chaos muſt take up time: And if ſo, why not ſix Days? ſince no leſs an Authority than the Scriptures determine that it did.

Let it not be made an Objection againſt what I offer upon this occaſion, that it limits God's Omnipotence; if that can be made appear, I utterly diſcard it: We ſay God is Omnipotent, and yet we deny that he can commit Sin; and conſequently, we don't permit his Omnipotence to extend beyond what is conſiſtent with his other Attributes. Again, we ſay, that God is Omnipotent, and yet we deny that he can make the ſame Body to be in

two

two or more places at the ſame time; and LET. I. conſequently, where the Object, as ſuch, is incapable of admitting ſome Properties, there we allow that Omnipotence has no place. This determines what is our notion of Omnipotence; that it is the power of doing all things poſſible to be done, and gives us the two general Heads to which we may reduce thoſe things which are impoſſible even to Omnipotence: Inconſiſtency with the Subject, and Incapacity in the Object. The application in the caſe before us is eaſie: A Body can't be in two or more places at the ſame time. But ſuppoſing an inſtantaneous formation of the World out of a Chaos, it neceſſarily might be ſo; therefore without any prejudice to God's Omnipotence, the formation of the World out of an antecedent Chaos muſt of neceſſity take up time.

The ſecond Objection againſt God's immediate operation in the caſe before us, is this, That it is a ſuppoſition repugnant to a conſiderable part of the *Moſaic* Creation. In the 5th and 6th days Works, for inſtance, the ſacred Author indeed brings in God ſaying, *Let the Waters bring forth, and let the Earth bring forth, &c.* which is indeed primarily to aſcribe the origin of theſe Productions

W. Whiſton on the Moſaic Creation, p. 52.

LET. I. ctions to the Power of God; but then it does by no means infer that he had now an immediate hand in 'em, any more than our anſwering God to the Queſtion, *Who made us?* infers that we were miraculouſly produc'd, without being beholding to ſecond Cauſes for our coming into the World: We ſay, God has ſent us a good Harveſt, tho' we don't imagine but that ſecond Cauſes were the immediate Agents in the Production: *Moſes* ſays, that God order'd the production of Land and Water-Animals, by a like form of Speech; not intimating that God did it immediately, but rather the quite contrary, as we conclude of the other mention'd ſimilar Expreſſions.

All that I can find in this Objection, does not by far reach what it pretends to prove: For, admitting that the places inſiſted upon might poſſibly be interpreted after the ſame manner with the other mention'd, which yet in my opinion is, to ſay the leaſt, to force 'em; yet this only ſhews that *Moſes*'s manner of expreſſion does not neceſſarily imply God's immediate Operation; but it does not ſhew that God's immediate Operation could not poſſibly be declar'd by ſuch a manner of expreſſion. Indeed, in our common way of ſpeaking, we ſay, God has ſent us

us a good Harveſt, and yet we certainly mean no ſuch thing as a Miracle in the caſe: 'Tis poſſible alſo that *Moſes* may ſpeak what is before cited after the ſame manner, and therein mean nothing leſs than immediate Operation. But, is it certain that this was his intention or meaning? Will the Words admit of no other interpretation? The Objection proves not this, which yet ought to be prov'd, in order to make it concluſive, to make God's immediate Operation repugnant to the Hiſtory. LET. I.

Indeed, this interpretation of the words is ſo far from being that only which they are capable of, that I think it is a very forc'd one; and that, if we conſider 'em impartially, even at firſt view, they will preſent us with a quite other meaning. *And God ſaid, let the waters bring forth abundantly the moving creature that hath life, &c.* Gen. i. 20. *And God ſaid, let the earth bring forth the living creature after his kind,* &c. *Ver.* 24. In which, or the whole of which two days Works, who that has his Eyes about him can be ſo blinded as to fancy he ſees a repugnancy with God's immediate Operation? God ſaid, *let there be Light:* Methinks this argues for his having a hand in the production of it; and an immediate one too,

LET. I, too, if any Expreſſion whatever can infer immediate Operation: And the two forementiond Expreſſions run in the ſame form with this: The only difference is, that in them we are oblig'd to underſtand Creation in a Secondary ſenſe, whereas in the Words of the former, ſuch a ſenſe is not ſo directly expreſs'd: As God, poſſibly, immediately created Light in the firſt caſe; ſo in the two others, he form'd Fiſh and Fowl, *&c.* out of the Water; and all manner of terreſtrial Animals out of the dry Land. This, methinks, is the plain and obvious meaning of theſe Words; at leaſt, they are infinitely far from being repugnant to ſuch a meaning: And if they are not repugnant to it, then the Hypotheſis of God's immediate Operation in the Hexaemeron, is as far from being repugnant to the whole, or any part of the ſame.

Thus much ſhall ſerve to anſwer the two main Objections I have met with againſt God's immediate Operation in the Hexaemeron; and at the ſame time, to eſtabliſh the truth of the Doctrine they are levell'd againſt; for, as it can't be diſprov'd, and as we have no reaſon to reject an hitherto univerſally receiv'd Notion, without good occaſion; I muſt take leave, with the generality of Mankind

kind, to conclude, that it is really true; LET. I.
that is, That God Almighty operated immediately, and that ſecond Cauſes had nothing at all to do in the proceſs of that ſix days Work which is recorded by *Moſes*. I need not proceed to ſhew at large, that upon this ſuppoſition, that Hiſtory is in no reaſon accountable to Philoſophy, this is a ſelf-evident Conſequence; and as it is ſo, it ſhews very clearly, that the vulgar Interpretation of that Hiſtory may be true, notwithſtanding whatever Exceptions may be made againſt it as ſo interpreted from the beſt, and moſt warrantable Philoſophy.

When I know your ſenſe of what I have advanc'd upon this Head, I will do what I am able in order to evince the truth of the next; and in the interim look upon it as an honour and happineſs that I am admitted to ſubſcribe my ſelf,

SIR,

Your moſt obedient, humble Servant,

A. B.

LETTER

LETTER II.

SIR!

YOU are pleas'd to acknowledge ſomething of reaſon in what I have advanc'd upon my firſt Head; at leaſt ſo much as will warra[illegible] my retaining as yet what I adh[illegible] to: I believe I can vindicate my ſelf as well upon the Second, which now I ſhall attempt to do; and refer it to you, whether it is not juſtly a farther reaſon for my adhereing to the vulgar Expoſition of the *Moſaic* Hiſtory of the Creation. My *Second* general reaſon, as I gave it you before, is this, *That, admitting the Laws of Nature to have took place in the Hexaemeron, ſtill we have not ſo much evidence for matters in Philoſophy, as with reaſon to make 'em a teſt whereby to try the truth of ſacred Scripture:* Still we have no reaſon to recede from the vulgar Expoſition of the Hiſtory of the Creation, inaſmuch as what evidence we have for Philoſophy, won't juſtifie our making it the teſt of di[illegible] velation.

II.

I take it here for granted, that [illegible] we know of the Laws of Nature, know from Philoſophy; and this is wha[illegible] every

every one who knows what the terms mean muſt neceſſarily grant: And thence I infer, that we have no more certainty in the knowledge of the Laws of Nature, than we have in that of Philoſophy; nothing can give more than it ſelf has; Philoſophy therefore can't give us more certainty in the Laws of Nature, than we antecedently have of it ſelf. If therefore we have not ſo much certainty for matters in Philoſophy as we have for the truth of the contents of ſacred Scripture, accordingly we ought not to make the latter accountable to the former; accordingly, what Light we have at preſent into Nature, can't juſtifie our wreſting holy Scripture to make it ſpeak the ſenſe of Philoſophy; does not in the leaſt hinder the truth of the vulgar Interpretation of the Hiſtory of the Hexaemeron, tho' we ſhould grant that the true Laws of Nature took place in the formation of the World. LET. 2.

And that we have not ſo much evidence for matters in Philoſophy as we have for the truth of the contents of ſacred Scripture, is a propoſition which [illegible] of the leaſt ſober Reaſon will [illegible]eed much making good. The truth [illegible]e contents of ſacred Scripture, we [illegible]now, is demonſtrable; indeed, it has been

LET. 2. been more than once demonſtrated, *in* my opinion, with as much force of Conviction as can be challeng'd by a Geometrical Theorem: Whereas, the beſt Philoſophy never yet preſum'd beyond Probability; and whatever at any time went farther, was ſoon ſhewn to be out in its pretenſions: This you well know; and every one who has been any thing converſant in theſe matters, cannot but be ſenſible of it: And upon this account we have all the reaſon in the World to conclude, that it is the moſt unreaſonable thing in nature to give up the obvious ſenſe of what in ſome ſenſe is true, and certainly without great reaſon the obvious may beſt challenge the true meaning, becauſe it contradicts what we don't know to be true, what at beſt is not very probable, and what may, notwithſtanding all that we can alledge in defence of it, be indeed abſolutely falſe.

Indeed, the weakeſt proofs of the truth of ſacred Scripture make it highly probable; whereas our beſt evidence for Natural Philoſophy is only conjectural. This I will attempt to make appear; which I can do, it will ſhew how ridiculous a thing it is to make Scripture accommodate to Philoſophy, to force new conſtructions upon

upon the former, whenever it is not perfectly conſonant to the latter. LET. 2.

The weakeſt Proofs which we can bring for the Scripture's being the reveal'd will of God, and conſequently true, are deduc'd *à priori*; by ſhewing the reaſonableneſs of a Revelation, and thence concluding, that the Scriptures are really ſuch. And yet that there is in many proofs of the Scripture the height of Probability, what others have advanc'd already fully ſhew; and what I am now about to produce, will, I think, make it evident.

Before I proceed to which; to ſhew *à priori* the reaſonableneſs of a Revelation, and thence to infer that the weakeſt proofs which we have of the truth of Scripture, make it more than probable, I muſt eſtabliſh the Being, and leading Attributes of God Almighty: Theſe I ſhall have ſome occaſion to argue from; it won't be therefore improper briefly to prove 'em; to demonſtrate that there is a God: and to ſhew the extent and mode of Exiſtence in him of ſuch of his Attributes as I ſhall have occaſion to argue from.

Now, that there is a God, all Men acknowledge; or if any deny it upon Principle, we have the ſtrongeſt Arguments

LET. 2. in the World to induce them to aſſent to this great Truth. Something they muſt grant to have been from Eternity, inaſmuch as they are ſenſible that Something now is; for had Nothing been from Eternity, Nothing could ever have been; to ſuppoſe the contrary, is to imagine a thing to be and not to be at the ſame time; to imagine the Something that now is to have brought it ſelf into Being, which we know is the firſt, and moſt palpable of all Contradictions. The Queſtion then is, What that neceſſary eternal Something is? Whether the viſible World in *Statu quo nunc*, or in any ſtate at all? Or, Whether a different Being, which gave Being to this World, and which we call God? Now, that the viſible World can't have exiſted from Eternity in its preſent condition, is as demonſtrable as any thing in Nature.

For the principal conſtituent parts of this World are in a condition inconſiſtent with eternal paſt duration; I mean, in a conſtant ſucceſſion, which can't poſſibly at any time aſſign'd have actually been eternal: That an eternal paſt ſucceſſion is an impoſſibility, appears from hence, That ſucceſſion is made up of parts in a perpetual flux; which parts, before they can be paſt and gone, muſt of neceſſity have

have been present and to come: Nothing can be past which was not once present; and as nothing can be past which was not once present, every thing, by consequence, which is past, was once present; every part therefore of the suppos'd eternal succession was once not past, but present; and consequently, here are evidently two limits of a suppos'd Infinity, the τὸ νῦν of present moment, and that of the most remote of the numberless parts of the indefinite succession, which, as past, of necessity, at some distance of duration, was not past, but present. As certainly therefore as the principal constituent parts of this World are in a constant succession, and as sure as an eternal past succession is an impossible thing, so sure it is that the World in its present condition can't have actually existed from all Eternity. LET. 2.

The only Exception against this manner of Argumentation is this; That it seems too prove too much, and consequently nothing: As it proves the impossibility of an eternal past succession, has it not the same force against an eternal past duration also? But an eternal duration there must have been, tho' it seems to disprove it; and consequently an eternal past succession there may have been, tho' it seems to disprove it also. In

LET. 2. In anſwer to which, it may be obſerv'd, that tho' this Objection be valid againſt ſuch as of late have taken up a new Notion of abſtract duration, becauſe the old one did not accord with their method of coming by the knowledge of things, yet it is no way concluſive with ſuch as don't fancy that abſtract duration partakes of the nature of ſucceſſion: Now, that abſtract duration does partake of the nature of ſucceſſion, who has yet prov'd? Till which can be done, the Exception alledg'd againſt what I have advanc'd is nothing: Indeed, what I have advanc'd, ought rather to be a demonſtration, that abſtract duration and ſucceſſion don't partake of the nature of each other: For, inaſmuch as it is evident to natural Reaſon, that there muſt be ſuch a thing as an actual paſt eternal duration; and inaſmuch as I have demonſtrated an actual ſucceſſive paſt Eternity an impoſſible thing; may we not reaſonably hence conclude, that abſtract duration can't partake of the nature of ſucceſſion? Indeed, what abſtract duration is we know not; no more than we do the nature and eſſence of Subſtance; the Exiſtence of 'em both we are ſure of, and we come by the knowledge of the Exiſtence of both after the ſame manner; not by Senſation or Reflexion;

Reflexion; but in each caſe, by a De- LET. 2.
duction *ad abſurdum*, ſuppoſing the contrary.

The ſecond Queſtion is, Whether the viſible World in any ſtate at all; whether abſtract Matter can have exiſted from all Eternity? And the negative of this, I believe, is as capable of demonſtration as that of the former; for, what is Eternal, is therefore neceſſarily Exiſtent, and *vice verſa*. Supposing therefore Matter to be Eternal, it is neceſſarily Exiſtent alſo; and if it neceſſarily is, conſequently nothing can deprive it of its Being; and if nothing can deprive it of its Being, 'tis of infinite Power; of a Power to keep in Being ſuperior to all imaginable or poſſible which would attempt to deprive it of Being; and if it is of infinite Power, 'tis of infinite Perfection: As certainly therefore as abſtract Matter, as ſuch, is not infinitely Perfect; ſo ſure it is that it can't have actually exiſted from all Eternity.

And if neither this World, nor the Materials of this World, can have exiſted from all Eternity, then they muſt have been brought into Being by Something which muſt of neceſſity have ſo long exiſted: That Something we call God; and

LET. 2. conſequently, we have moſt irrefragable demonſtration for the Being of a God.

The Nature of this God whoſe Exiſtence we have now prov'd, we can't fully comprehend; and yet a great many Attributes of his, as his Unity, Immateriality, infinite Wiſdom, Goodneſs and Power, we are capable of diſcovering: His Unity we conclude from the neceſſity of his Exiſtence; his Immateriality from the ſame, and the impoſſibility of ſuch a thing as eternal Matter; Wiſdom, Power and Goodneſs are things which finding in the Creature, we conclude in the Creator; and theſe, and all other his Attributes whatever, we are able to demonſtrate he has neceſſarily, and to an infinite degree: He has 'em all neceſſarily, inaſmuch as he has had 'em all from all Eternity, for Eternity infers Neceſſity, as I have already obſerv'd: And as he has 'em all neceſſarily, ſo 'tis equally demonſtrable, that he has 'em in infinite perfection; for whatever is neceſſarily Exiſtent, is infinitely Perfect: What Perfection is limited, is ſo either becauſe communicated, or becauſe the Subject it ſelf is alſo limited, and can admit of no more of it; but 'tis evident, that nothing communicated is neceſſarily Exiſtent, neither can any thing of a limited nature be ſo; Limitation implying Imperfection, or Impotence; where-

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as what is Eternal, we have ſeen, is of infinite Power. LET. 2.

Thus much preliminary: I come now to prove *à priori* the reaſonableneſs of a Revelation; and thence to infer, that the Scripture is ſuch; in order to ſhew, that the weakeſt Proofs which we have of the truth of Scripture make it highly probable; and this I will do thus.

We have ſeen that God created us: I ask then, for what end did he create us? For ſome end we may be ſure; as he he is neceſſarily infinitely Wiſe, he muſt neceſſarily have ſome end or other for all and every of his Actions; to act to no purpoſe, is folly; which as infinite Wiſdom can't be guilty of, conſequently neither can it of doing any thing without a Reaſon why 'tis done. This may ſatisfie us, that in creating us, God Almighty of neceſſity propos'd to himſelf ſome end: What then was that end? I anſwer, in general, 'twas a good one: This is as evident as it is that he propos'd any end at all. He, we have ſeen, is neceſſarily infinitely Good; and conſequently, whatever he does, muſt of neceſſity be good: In creating us therefore, he did what was good; and inaſmuch as he alſo created us for ſome end, conſequently 'tis as clear as any thing in nature, that he

LET. 2. created us for a good end; and not only for a good end, but even for our good. Our Happineſs was the end for which he created us. This is a truth as ſtrictly demonſtrable as either of the former. He could not make an acceſſion to his own Happineſs his end in creating us; this were to ſuppoſe him, before he created us, not compleatly happy. Indeed, to imagine that he could advantage himſelf by us, is to make him a dependent Being; depending upon us for an acceſſion to his Happineſs, which we know what we mean by God can't poſſibly be: And as he could not propoſe an acceſſion to his own, conſequently his end in creating us muſt be our Happineſs.

The Queſtion now is, Whether we enjoy that Happineſs at preſent for which God created us? I anſwer, we have the greateſt reaſon in the World to believe we don't. If we will credit our own experience, we muſt own we meet with no ſuch thing in this World, even throughout the whole courſe of our Lives, as ſubſtantial Happineſs: The better part of us, our Soul, is as far from Happineſs as it is involv'd in Ignorance; and how great our Ignorance is, they beſt underſtand, who are Maſters of moſt Knowledge; how miſerable the moral ſtate of our Nature,

ture is, we are all ſenſible; and all Men of all Ages, who are upon record for Wiſdom, have loudly complain'd of it; and our natural are not much better than our moral Circumſtances: In all reſpects whatever, we are liable from a thouſand Caſualties to uneaſineſs and miſery; how much we are expos'd to Pain and Sickneſs, who knows not? Every period of our Age, every ſeaſon of the Year, every change of the Weather, either create or heighten in us Troops of diſtracting Infirmities; and leſt we ſhould not be miſerable enough ſeparately, we are fatally puſh'd on to promote conjointly the Miſery of our ſelves and others; Quarrelling and Contention, Rapin and Violence, and Oppreſſion, Fighting with, and endeavouring to deſtroy one another, is the common practice of the World. Indeed, what Study is more eagerly proſecuted than the noble Art of Deſtruction! And if there is any thing from which we might otherwiſe expect to reap any pleaſure, ſuch Circumſtances generally attend the tryal of it, as turn what we expect ſhould prove Happineſs, into the Gall of Bitterneſs. This is our preſent condition. And as the caſe is thus, may we not ſafely conclude, that this is not the condition in which God made us? His end

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LET. 2. in creating us, we have ſeen, was our Happineſs; whereas we are far from being happy now; and conſequently, we muſt conclude, that we are not now in the ſtate we were created in: We are fallen from the condition in which Man came firſt out of the Hands of his Maker; and have utterly miſs'd of that Happineſs to which God Almighty of neceſſity at the firſt deſign'd us.

How ſoon our Forefathers fell from that Happineſs to which God deſign'd us, we know only from Hiſtory; and there is only one Hiſtory in the World which is particular upon this Fall. The credit of that Hiſtory is as unqueſtionable as that of any; and it is farther ſtrengthen'd by what I have advanc'd hitherto. For, ſince we ſee we have really fallen, we have an Argument *à priori* in favour of that Hiſtory, which bringing all other reaſonable Credentials along with it, gives an account of the Time and Manner of our Falling: And the Time of the Fall of Mankind from that Happineſs for which God Almighty deſign'd us, that Hiſtory tells was very ſoon after the Creation; The two firſt of our kind involv'd us in the Miſery we now labour under, and that before they brought another of their Species into the World. Indeed, had

had we no Hiſtory of the Fall of Man-kind, or the particular Time when that Fall happen'd, there are not wanting ſome very probable Inducements to perſuade us, that this ſad Accident happen'd in the earlieſt Ages of the World; as far towards the beginning of the World as we have Hiſtory, Mankind were, we ſee, with relation to Happineſs, much what in the ſame Circumſtances we are in now: And have we not reaſon to believe that our Hiſtories take up more than the major part of the time ſince the Creation? Even *Lucretius* himſelf is of this opinion when he argues from the defect of ancient Hiſtory againſt the Eternity of the World. LET. 2.

And if it was not long after God created us e'er we quite loſt that Happineſs for which he originally deſign'd us, I will appeal to any Man of Reaſon, Is it not highly conſonant to his Goodneſs, conſidering how long he deſign'd the World ſhould laſt, to endeavour again to inſtate us in, or put us in a capacity of regaining our original Happineſs? Certainly it is not only ſo, but I dare almoſt venture to ſay, he is oblig'd to it, as he is neceſſarily infinitely Good: He knew how ſoon Mankind would loſe their Happineſs before he created 'em; that is, as we ſee from

LET. 2. from matter of fact, that they would not keep it long after their Creation; and he knew how long he deſign'd the ſucceſſion of Generations in the Sons of Men ſhould continue in the World: He knew therefore at the ſame time, that, did he take care of no Remedy, he created the whole World in order to their own Miſery; indeed not directly, but yet effectually; which, how it could be done by a God of a Nature infinitely Good, and neceſſarily ſo too, I muſt confeſs is infinitely out of the reach of my apprehenſion. It muſt therefore be granted, that we have all the reaſon in the World to be fully ſatisfy'd, that God has certainly taken due care to put us in a capacity, if we are not wanting to our ſelves, of recovering our original Happineſs: And this, in my opinion, infers with the higheſt imaginable probable Evidence, the certainty of an actual divine Revelation in the World.

For, if he has taken this care, he muſt alſo have told us, at the ſame time, how and after what manner he has taken it; that is, how he has deſign'd we ſhall be reinſtated in our Happineſs; this conſequence is unavoidable, and infers, or rather expreſſes in other terms, the Revelation of his Will to us; And if he has reveal'd

veal'd his Will to us, is there any man- LET. 2.
ner of neceſſity of putting the Queſtion, whether or no that Revelation is only to be found in Scripture? Indeed no ſuch matter; that Book is worthy of God; and there is nothing elſe in the World which pretends to be Revelation, which is worthy the Patronage of a Wiſe-man; that Book therefore in the higheſt probable aſſurance really came from God; which was the Propoſition to be prov'd; and conſequently we ſee very clearly that the weakeſt Evidence we have for the Scripture's being the Word of God, amounts at leaſt, to one of the higheſt poſſible degrees of Probability in the World.

I am now to prove what I promis'd in the ſecond place, That the beſt Knowledge we have in Philoſophy, is only conjectural. And this, I think, is a Propoſition which will admit of eaſie proof. 'Tis certain the very moſt which has appear'd upon the ſubject, muſt be content to be look'd upon as no better than Conjecture; otherwiſe, how comes what is advanc'd in Philoſophy to be, generally ſpeaking, ſo very ſhort-liv'd? How come thoſe Notions which were ſo cry'd up a while ago, to be now as deeply bury'd in oblivion, as if they had never been?

Thoſe

LET. 2. Thoſe fine and delicate Theories which for a time were ſo great a Glory to their Maſters, how came they now to be look'd upon as Chimera's, to the great mortification of thoſe who advanc'd 'em, to ſee their eternal Labours, as they fondly fancy'd 'em, die before themſelves? That this is matter of fact, every one who is converſant in Philoſophy muſt acknowledge. For ſome Years laſt paſt, Philoſophy has been the darling Study of all the learned Nations, and innumerable Pieces have come out from time to time upon this Subject; which as they follow'd each other, have each had their time of predominancy as they appear'd; and every conſiderable one of the later, has been the deſtruction of all that went before it, and this we may obſerve for a long time, even to this Day; and I doubt not but the like fate will attend what we now gape after upon ſome future fancy'd Diſcoveries: Whereas this would not be the caſe, were our knowledge in Philoſophy any more than barely conjectural. Truth is not of ſo fickle, and wavering, and periſhing a nature as this comes to: It is ſullen, and will keep its ground; and having nothing of better pretenſions than itſelf to give place to, it ſtands unmov'd, and unmovable for all Ages: Only Fan-

cies

cies are fleeting; and naturally, and ne- LET. 2.
ceſſarily give place to each other; every new one takes moſt; and upon its appearance what before were in full poſſeſſion, either flag, or totally vaniſh: This is experimentally the caſe of natural Philoſophy. I take it therefore, as to the greateſt part of it, to be no better than Fancy; a Caſtle built in the Air, without any conſiderable Foundation in Reaſon or Nature. Thus much in favour of my Propoſition from Experience.

And as Experience ſhews us this, ſo it is not impoſſible to give conſiderable Reaſons for it; to ſhew how it comes to be ſo, and to prove, that in the preſent ſtate of our Nature we have no great reaſon ever to expect it otherwiſe. Two methods have been made uſe of in Philoſophic Diſquiſitions; the one, or the other by every one who has meddled with Philoſophy; the method of Syſtems; and that founded, and proceeding upon Experiments. In both which ways we have evident Reaſons why natural Philoſophy is no better than Conjecture; and as long as they hold, which I believe will be at leaſt as long as we ſtay in this World, we have very little reaſon to hope that it will be otherwiſe.

I call

LET. 2. I call thoſe Syſtematical Writers of Philoſophy, who proceed in their Diſquiſitions from the Cauſes to the Effects; and imagining that they know the real Eſſence of Matter, take their riſe from thence; and from it in Motion, determine the vaſt variety of Phenomena in Nature: Indeed, were the Eſſence of Matter certainly known, this were the moſt rational way of proceeding; as in Figures in Geometry, their Eſſences being known, the Properties reſulting from thoſe Eſſences are *à priori* demonſtrable, whether we conſider 'em apart or in combination with other Figures equally known. The caſe would be the ſame with Phyſics upon the ſame conditions; whereas the conditions are ſo far from being the ſame, as to make the Effects contrary. In Geometry our Diſcoveries are ſure, as we are ſure that we know the Eſſence of the Figure we are upon. In Philoſophy 'tis impoſſible to make any more than gueſſes; we are not ſure that we know the Eſſence of Matter; and conſequently, if we advance any thing upon ſuppoſition that we do know it; what, I pray, is it more than conjecture?

Indeed, we are ſo far from being ſure that we know the Eſſence of Matter, that I think we may rather be ſure that we do not

not know it; what has hitherto principally pretended to it, I am ſure can't be it; and I believe it is a thing utterly impoſſible, in our preſent circumſtances, for us to know it at all. What way have we of diſcerning the nature of thoſe Principles which conſtitute what we call the Specific Eſſences of things but by our Senſes? And is any ſo much beſides himſelf, as to fancy that his Senſes, as they are at preſent conſtituted, can let him into theſe Myſteries? Indeed, I am ſo far from believing this at preſent, that I do not know that they will ever be able to do it: For, let the Organs of my Eyes, for inſtance, be ſo diſpos'd as to be capable of refracting the fineſt, moſt delicate, and ſubtile Ray in Nature; 'tis evident that this Ray muſt conſiſt of a train of either lucid or pellucid Bodies, which how it could be ſo reflected, as to ſhew us the nature of a ſpecifically eſſential Principle of this or that Body, by ſuch an almoſt infinitely minute Principle or Particle, of which, perhaps, there are a great number in each globule of that Ray, I am at a loſs to apprehend; much leſs, how could this ſpecific Principle reflect ſo many Rays as would let us ſee it in all its Mechanical Capacities? To underſtand its Powers and Properties, it is abſolutely

LET. 2.

LET. 2. requiſite that we be ſenſible of its ſize, texture, *&c.* but that can't be had without Rays reflecting from at leaſt every Point where the Surface varies; whereas ſuppoſing all this practicable, ſtill we have only the ſpecific Eſſences of opace Bodies: They which diſcover 'em lucids and pellucids, which compriſe the moſt noble part of the Theory of Nature, are, after all the advantages we can grant our ſelves, ſtill in the dark.

And as we can't have the ſpecific Eſſences of Bodies by our Senſes, much leſs can we expect from 'em the Eſſence of Matter in general. The ſpecific Eſſence of a Body conſiſts in the Figure, Solidity, *&c.* of its Parts or Principles, which we are apt to imagine were eaſily diſcoverable, were our Senſes refin'd to the higheſt degree of perfection they are capable of; whereas when we abſtract from Species, conſider Matter in general; and accordingly reject the very imagination of Particles and Principles; for this we muſt do to find out the Eſſence of Matter abſtractly conſider'd; Particles in this caſe being to be rejected as only the Principles of Exiſtence: Here, at firſt ſight, we give up the Cauſe: We ſee that our Senſes in this caſe can't aſſiſt us; that in the higheſt

Refine-

Refinement poſſible, they cannot diſcover to us the Eſſence of Matter in general. LET. 2.

And as the account of Nature by the method of Syſtems, inaſmuch as we are ignorant of the Eſſence of Matter, can never advance beyond bare Conjecture; ſo by the method of Experiments, which yet is, by much, better than the former, I think it can't reach much higher. Setting aſide this Conſideration, That the moſt accurate Experiments may, I may ſay muſt be in ſome degree defective, as any one can't but ſee who underſtands of what a complicated nature moſt Phyſical Effects are, who is ſenſible how many unſeen and unknown Agents may concur in the production of that Phænomenon, which, as far as he is able to judge from the moſt accurate Experiments, is the reſult of this or that individual Power: Setting this aſide, I ſay, which yet very great Men have upon occaſion made an objection againſt the certainty of experimental Philoſophy; nothing can be more evident than that Propoſitions founded upon Experiments are invalid; a general Deduction from however numerous Experiments have been made hitherto, is, we know, an inference of an univerſal, from ſome few Particulars, which whether it be an unexceptionable ground whereupon

LET. 2. to found Phyſical Theories, and whence to deduce ſuch univerſal Concluſions as the Laws of Nature, I leave you or any unbiaſs'd Perſon to determine.

Thus much ſhall ſerve to prove the truth of what I advanc'd in the ſecond place, That our beſt knowledge in Philoſophy is only conjectural; and this I think what I have offer'd is ſufficient to prove. And now I may with reaſon make that concluſion which I at firſt aim'd at, That inaſmuch as our certainty of the truth of ſacred Scripture infinitely outgoes the beſt evidence we have or can have for Philoſophy, conſequently in reaſon we ought not to try the former by the later; conſequently we ought not to make its contradicting the later any reaſon for our receding from the obvious Interpretation of the former: We are fully ſatisfy'd, that every Propoſition in Scripture, in ſome ſenſe or other, is infallibly true; and as our beſt knowledge in Philoſophy is only conjectural, is it impoſſible for us to be miſtaken in our gueſſes? May not what we fancy true in Philoſophy be indeed actually falſe? May not therefore the reaſon why Scripture is contradicted by Philoſophy in its vulgar Interpretation be this, That whereas the Scripture in this ſenſe is really true, that which

which contradicts it, and which we imagine true Philoſophy, is as really falſe? Undoubtedly all this is very poſſible. Indeed, as we are ſure that Scripture in ſome ſenſe or other is certainly true; and as *its obvious and literal ſenſe is to be embrac'd where no ſufficient reaſon can be given to the contrary*, I think we ought rather to look upon Philoſophy as falſe, when it contradicts the obvious ſenſe of Scripture, than to recede from the Scripture's Letter, becauſe it thwarts ſome Chimera's in Philoſophy. LET. 2.

I ſay I think this, but I may ſay that this is the moſt warrantable practice: Indeed, I have demonſtrated it ſo to be; and therein ſufficiently vindicated my ſelf in the caſe before us. For, let ſecond Cauſes be ſuppoſed to have took place in the firſt formation of things, as recorded by *Moſes*; we may obſerve that his Hiſtory of that great Work, in ſome ſenſe or other, is infallibly true; the truth therefore, if it is not againſt reaſon, muſt be adjudged to its obvious Interpretation; as I therefore find it no way againſt reaſon, I have reaſon to adhere to its obvious Interpretation. Indeed, ſome Men, as they think, with reaſon, reject the vulgar Expoſition; it contradicts, ſay they, Philoſophy; and conſequently can't

LET. 2. be taken in its obvious ſenſe; whereas, what I pray is Philoſophy? at the very beſt no more than a may be; and therefore it may be falſe as well as the contrary; and if ſo, it may be ſo where it contradicts the obvious ſenſe of Scripture; and therefore we have not the leaſt reaſon in the whole World, for the ſake of Philoſophical Difficulties, to recede from the obvious Expoſition of ſacred Scripture. On the contrary, the *Moſaic* Hiſtory of the Creation may be literally true, however Philoſophy may ſeem to make againſt it; even tho' we ſuppoſe the Laws of Nature in the formation of the World. This is what I was to make good under my ſecond Head: And taking it for granted, that in what has been offer'd, it is ſufficiently effected, I ſhall take my leave of you for a while; deſiring in the interim, and for ever, to continue,

SIR,

Your moſt obedient, humble Servant,

A. B.

LETTER

LETTER III.

SIR!

I Have done with the two former Reaſons which I gave you for my ſtill adhering to the vulgar Expoſition of the *Moſaic* Hiſtory of the Creation of the World. Before I proceed to the third, give me leave to make this Obſervation, That the two Reaſons I have already inſiſted upon, hold in defence, even in the ſtricteſt and moſt uſual ſenſe of the Word, of the vulgar Expoſition; they prove that literally, and as it lies, we have no reaſon to recede from the *Moſaic* Hiſtory: The Laws of Nature took no place upon that occaſion; this is the firſt; therefore no Exceptions from the Laws of Nature can warrant our receding in the leaſt from the vulgar Expoſition. Or ſuppoſing that they did take place, ſtill we have ſo very little knowledge of 'em from Philoſophy, as is far from warranting our innovating one jot or tittle in the Interpretation of the Hiſtory. This is the ſecond Reaſon I have inſiſted upon, and I look upon 'em both as of no inconſiderable force. Indeed, upon theſe two accounts, I think,

LET. 3. we may juſtifiably take the Hiſtory as it lies, as a plain *Journal* or *Diary*, without any addition to what it ſpeaks of, any alteration of its Method, any curtailing of the ſubject matter it ſeems to contain; and ſo taking it, we may warrantably define it thus: *'Tis a plain, tho' general Account of the Creation of the whole material World out of nothing; and of the method God Almighty took in bringing it in the time ſpecify'd by* Moſes *into the form we find it in at preſent.* This is what every unprejudic'd Reader expects from it when he is about to peruſe it; and expect it we warrantably may, as I have fairly ſhewn already, notwithſtanding whatever has hitherto been objected to the contrary.

The third Reaſon I gave you at firſt is this, *That tho' we ſhould ſuppoſe it reaſonable to make Scripture accountable to Philoſophy, the Exceptions againſt the vulgar Expoſition are nevertheleſs anſwerable, there being nothing in this Hiſtory, as vulgarly interpreted, which contradicts the beſt Philoſophy*; and the truth of what I advance under this Head, I believe it will not be found impoſſible to make good; only before I attempt this, it muſt be obſerv'd, that I don't now take the Word *Vulgar* totally in the ſame ſenſe in which I have took it hitherto. As to the extent of the

Creation,

Creation, I take it to ſignifie abſolutely the ſame; that the Work of the Hexaemeron includes no leſs than the whole material Creation: And as to the time too, I look upon ſix Days properly ſo call'd to have been the whole time in which this great Work was brought to perfection: Nay, and I adhere well nigh to the vulgar Method; only in order to reconcile this Hiſtory with Philoſophy, I ſuppoſe that the Materials of the whole World were created at firſt; and not as ſome, that the Sun, Moon, and Stars were created in a primary ſenſe on the fourth Day: And upon this ſuppoſition I define after this manner, the extent, and nature, and method of the *Moſaic* Hiſtory. *'Tis an Account of the Creation of the whole material World out of nothing; and of the diviſion of the firſt Matter into a vaſt number of Bodies, which from before the firſt Day, immediately upon their diviſion, were working into being till, by the end of the fourth Day, they all came to perfection.* This as to extent and time is the moſt vulgar Expoſition; and in all other reſpects too; only that I ſuppoſe that the Materials of the Sun and Stars came at firſt into Being, which perhaps ſome may not admit of, tho' theſe Words ſeem to imply it, *In the beginning God created the Heaven and the Earth;* LET. 3

LET. 3. *Earth*; and in the fourth Days Work I underſtand Creation in a Secondary ſenſe, as coming to perfection; whether with more reaſon than others, I don't contend. Upon which two Suppoſitions, if we conceive withal the World working it ſelf into perfection even from the beginning, I believe this Hiſtory is reconcilable with the beſt Philoſophy.

Not that I contend that this is the true Interpretation of the Hiſtory. I have ſhewn already, that in the moſt literal ſenſe it is capable of, we have no reaſon to diſcard it; and yet in this ſenſe the extent is the ſame, and the time too, with the moſt vulgar Expoſition; only the method ſomething varies; and were I neceſſitated to go about it, I think I ſhould find that this little variation would admit of a plauſible defence. You know who gives us this Idea of the Hiſtory before us *That it is an Hiſtorical Journal or Diary of the Mutations of the Chaos, and of the viſible Works of each Day, ſuch as an honeſt Spectator on the Earth would have made and recorded:* Let this Notion be admitted of, only extending the Chaos to the utmoſt limits of the material Creation, and making the ſix Days mention'd by *Moſes* of the ſame extent with thoſe we have at preſent: In this ſenſe I will attempt to

ſhew

LET. 3.

ſhew the *Moſaic* Hiſtory to be reconcilable with Philoſophy; and how little in this ſenſe we recede from the moſt obvious Interpretation, you can't but be ſenſible. Were I oblig'd to it, I could ſhew how little, and with what reaſon: But I am not concern'd to maintain it. The moſt literal ſenſe may be true in the Eyes of all thoſe who think this Hiſtory not accountable to Philoſophy; and what reaſon we have to think ſo, I have ſhewn at large already. Every one therefore, who is ſo minded, may warrantably embrace it; and give what I have offer'd as Reaſons why he adheres to the moſt obvious Expoſition of the Hiſtory of the Hexaemeron. They who will try Scripture by Philoſophy, may take up with this other; I think it recedes next to nothing from the letter of the Hiſtory; and I am ſure comes nigher than any other I have yet met with, to the moſt vulgar Expoſition.

They who come next to it, are thoſe who fancy our Planetary Syſtem to have been the utmoſt extent of the ſix Days Creation; and theſe Gentlemen, in my opinion, have more reaſon to embrace mine than their Notion. If its irreconcileableneſs with Philoſophy is the reaſon why they can't entertain my Notion, the

v. Biſhop *Patrick* on *Gen.* 1. *Nichols's Conference* part 1.

LET. 3. the very ſame difficulty lies againſt their admitting of their own: One Syſtem is as difficult to be form'd in ſix Days, as one hundred thouſand, ſuppoſing the formation of 'em all to have commenc'd at one and the ſame time: Beſides that, I don't queſtion but even in the extent I contend for, to reconcile with Philoſophy the Hiſtory of the Creation; as mine therefore comes nigher the Letter than theirs, *cæteris paribus*, it ought to be the rather embrac'd. Or if they thus limit the extent of the *Moſaic* Hiſtory, in order to anſwer that Objection of the Atheiſts, That it is highly improbable the World ſhould be no older than the *Moſaic* Account makes it: Which objection, they conceive is taken off, if we may ſuppoſe the reſt of the World in Being antecedently to the formation of our Syſtem, but is in force againſt ſuch as bring no leſs than the whole material World within the verge of the *Moſaic* Creation; they here endeavour to evade an invalid Objection; an Objection which proves too much, and conſequently nothing: For, fancy all the World but our Syſtem as ſoon created as you will, this Objection is apparently as valid as ever; an Eternity muſt of neceſſity have preceded it; and no more than an Eternity has preceded

ceded its Creation, tho' we ſuppoſe the whole World the Work of the Hexaemeron: Time and Eternity have no more relation to each other, than Body and Space; abſtract Space is infinite, but Body can't be ſo; neither can Time be infinite, tho' Eternity is. As it is therefore no Objection againſt God's Goodneſs that he made the material World no bigger than he did, inaſmuch as make it as big as he would, ſtill an infinite Space would remain unfill'd, and the ſame Objection would lie againſt it as before; ſo neither ought it to be an Objection againſt the ſame, that he made the World no ſooner than he did, make it as ſoon as he would, an Eternity would be antecedent to it, and the ſame Objection would lie againſt his ever making it. LET. 3.

Taking therefore, for the future, the vulgar Interpretation in the leſs obvious ſenſe I have now given of it, which yet agrees with the *moſt Vulgar* in the two principal Particulars of *Extent* and *Time*, let us ſuppoſe that the Materials of every Syſtem in the Univerſe were created at the ſame time; that the *Moſaic* Chaos compriz'd all thoſe Materials: Of the nature of that Chaos, let us conclude from the account we have of that part of it which made our Earth: From the Revolutions

which

LET. 3. our Earth underwent, in particular, let us infer the like at the ſame time undergone by all the Syſtems of Bodies throughout the vaſt *Expanſum*; till at laſt, at the end of the fourth Day, they all came to perfection. The deſign of the ſacred Author being to calculate his Hiſtory for the particular Inhabitants of our Earth, as it is highly reaſonable, let us ſuppoſe, that, as he applys himſelf in a more eſpecial manner to it; ſo from what it underwent, he leaves us to conclude of the reſt, *ex pede Herculem*. And upon theſe Suppoſitions I will attempt to reconcile our Hiſtory with the beſt Philoſophy.

I think the Hiſtory of the Creation, as it is deliver'd by *Moſes* in the 1ſt of *Geneſis*, may not improperly admit of this general diviſion: *Firſt*, into a Preface, or Introduction to what was properly the Work of the Hexaemeron; ſignifying by whom, and in what condition the Matter of the World was made: And *Secondly*, into the account of the proceedings of the Work it ſelf; wherein are deliver'd the Methods proſecuted by infinite Wiſdom in the reduction of that originary Chaotic Promptuary into the form we now find it of.

The

The Words of the Preface are theſe: LET. 3.
In the beginning God created the Heaven, and the Earth: and the Earth was without form, and void; and darkneſs was upon the face of the Deep: And the Spirit of God moved upon the face of the Waters. Which Words I will give you a paraphraſe of, after I have made a previous remark upon 'em. What I would remark is this; That by *the Spirit of God*, which is here intimated to move upon the face of the Waters, *Moſes* underſtands the third Perſon in the ever-bleſſed Trinity. This, as I remember, is noted by Mr. *Ainſworth*, tho' many repreſent it otherwiſe. We meet with it expounded as the *Vis Plaſtica*, or *Plato*'s univerſal Soul of Nature; and we meet with it, eſpecially amongſt *Jewiſh* Expoſitors, render'd *a Wind paſſing over the ſurface of the Chaos*: But neither of theſe Explications can, without unanſwerable difficulties, be admitted: For, the Matter of ſuch ſtatuous Exhalations had no place to exiſt in till the creation of the *Expanſum*; neither could it be generated till there was a Sun. And the Exception is in part the ſame againſt the *Vis Plaſtica*; which could not poſſibly operate till the production of Heat. This remark being premis'd, take this paraphraſe of the Preface to our Hiſtory: *At the firſt com-* Gen. i. 1, 2.

LET. 3. *commencement of Time God created all things; all the Planetary Syſtems in the Univerſe in the ſame Chaotic condition; all the reſt of the World, as well as that part of it which we now inhabit, was at firſt without form, and dark, and fluid: which inform and unactive Maſs, was immediately ſo agitated by the incubation of the Spirit of God, as thence to be empower'd, after the appearance of Light,* as the ſequel of the Hiſtory diſcovers, *in four Days time to be reduc'd into that prodigious number of globular Subſtances, which, partly fix'd, partly in motion, in their reſpective Vortices, compoſe the preſent World.*

Againſt the Preface thus, or any way interpreted, no Philoſophical Exception can be made. 'Tis no part of the Hexaemeron, properly ſpeaking; and tho' we ſuppoſe the Laws of Nature to have took place as ſoon as poſſible, it could not be till after the ſeparation of the Chaos into parts, by motion; which we may ſuppoſe, indeed, to have been done by the Spirit of God ſome time before the beginning of the firſt Day; and from that time the Operations of ſecond Cauſes may have commenc'd. From thence therefore we are oblig'd to anſwer all Philoſophical Difficulties; not till then, becauſe till then there could be no Laws of Nature.

They

They who imagine God to have had leaſt of all to do in the formation of the World, grant that he created, and put Matter into Motion: This is all this Preface intimates; and all I contend for: Which, indeed, muſt neceſſarily be granted; and as neceſſarily exempts this Preface from being liable to anſwer Philoſophical Exceptions. I am not willing to enter upon the Hexaemeron till I have your ſenſe of my general Expoſition. Till when I am, LET. 2.

SIR,

Your obedient, humble Servant,

A. B.

LETTER IV.

SIR!

AS you are pleas'd to admit of the general Expoſition I gave you in my laſt, I will now take it for granted, and endeavour upon that Suppoſition to reconcile the *Moſaic* Hiſtory with the beſt Philoſophy. The Work of the firſt Day, we are told, was the creation of Light: *And God ſaid, let there be Light; and there was Light: and God ſaw the Light that it was good: And God divided the Light from the Darkneſs; and God called the Light Day, and the Darkneſs He called Night: And the Evening and the Morning were the firſt Day.*

Gen. i. 3, 4, and 5.

It is well known how merry modern Wits have made themſelves on occaſion of the Object of this Day's Work with *Moſes*'s Philoſophy. "Poor Prophet, "(ſay they) he thought it very incon- "gruous to ſet God to Work in the dark, "and accordingly 'twas proper a Light "were ſtruck, that he might ſee the bet- "ter to go about his Buſineſs! This is "Philoſophy good enough for the Chim- "ney-Corner, where the glorious Ad- "ventures of *Don Quixot de la Mancha*

" are as much attended to, nay more gap'd after than the beſt part of the " Hiſtory of the Bible; but certainly none " can be ſo ſilly as to imagine it will take " with thoſe who ſee better into Matters. " Light before the Sun ſounds very gra- " tingly in the Ears of Philoſophers: In- " deed, ſuch Doctrine will never down, " till Men can be prevail'd with to give " up their Reaſon; till it can be prov'd " that the Effect may be antecedent to its " Cauſe: So that 'twere to be wiſh'd we " had not heard of Light thus ſoon, but " that the *Prophet* had been ſo wiſe as to " put it off for a while, and not ſuffer'd " it to have appear'd upon the Stage till " the fourth Day; then we might natu- " rally expect it, but till then no Man of " Senſe or Reaſon can admit of any ſuch " thing. This is the great Exception a- gainſt the Work of the firſt Day; upon account of which, many conſiderable Men have thought it neceſſary to recede from the vulgar Expoſition. I think this difficulty far from being ſufficient to war- rant any ſuch receding; and that *Moſes*'s telling us of Light before the Sun, is no real Objection againſt the vulgar Expoſi- tion, as I now take it, of the Hiſtory of the Creation. LET. 4.

LET. 3. Indeed, I am of opinion, that we are far from being certain that we know what Light is; which if we are not, then the Exception before us falls: For, if we are not ſure that we know what Light is, then neither can we give any certain reaſon why it might not be antecedent to the Sun; and that we may be really ignorant of the true nature of Light, 'tis not, I believe, an impoſſible thing to ſhew: For if the grounds whereon all our Theories of Light are built are exceptionable, then the beſt Superſtructures muſt of neceſſity be ſo too: If we don't know but that we lay down wrong Principles, certainly we can't be no ſurer of the Doctrines we draw from 'em: Therefore, if we know not but that the beſt grounds our Theories of Light proceed upon are precarious, conſequently we can know no more of the Superſtructure than of the Foundation; conſequently we can't ſay but we are yet in the dark as to the true and genuine nature of Light: And that the grounds we proceed upon in explaining the nature of Light, are ſo exceptionable, as that we can't ſay but what we pitch upon may be precarious, 'tis no difficult matter to make appear.

The two general grounds which all the Theories of Light proceed upon, are

theſe: Firſt, *That Light is ſomething in-* LET. 2.
herent in the Subject, what we call the lucid Body, correſpondent to, or of the like nature with, the ſenſation which we have of it; a Principle inſiſted upon by *Ariſtotle* and his Followers, and by almoſt all the old Philoſophers. And 2dly, *That it is nothing inherent in the Subject, but the reſult of its operation upon our Organs, which operation is by them convey'd up to the common Office of Intelligence, there given in to the Soul, and in her producing what we call the ſenſation of Viſion:* And this Principle is chiefly built upon by the Philoſophers of later date. Now, againſt the neceſſity, as far as we can determine, of the truth of either of theſe Principles rather than the other, there are in all appearance unanſwerable Exceptions: Such as, tho' they don't prove 'em both falſe, at leaſt diſable us from being ſecure which of 'em to embrace; and if we are not ſecure which of 'em to embrace, is one muſt be falſe as well as the other true, is it impoſſible for us to light upon the falſe one? Do we know, after our choice, whether we have hit upon the true one, or otherwiſe? And if we do not, then we are not ſure but we have made a wrong choice; our uncertainty in our choice, makes us of neceſſity un-

LET. 4. certain what Light is; which as long as we continue, we are utterly unable to ſhew the impoſſibility of the exiſtence of Light antecedent to the formation of either Sun or Stars.

V. Rohault, Phyſ. part 1. *cap.* 2. The Exceptions againſt the Principle of *inherent Qualities*, are innumerable: All the Books of the *Carteſians*, and of moſt other new Philoſophers, are full of 'em; and what they object, muſt be acknowledg'd to be extreamly ſpecious: They are in every Bodies Mouth, and therefore I need not inſiſt at large upon 'em. I will only in brief ſhew the neceſſity of the truth of the Doctrine of inherent Qualities. 'Tis certain very often what we fancy in the Object is really in us: Thus People in a high Fever ſometimes think that they ſee very glorious and dazling Colours, when thoſe who are in perfect Health find no ſuch matter; which muſt therefore needs be in themſelves, and not in the Object they conceive 'em in: When a Man in the dark preſſes either corner of his Eye with his Finger, and turns his Eye away from his Finger, he will ſee a circle of Colours, ſeemingly at a diſtance in the Air, like thoſe in the Feather of a Peacock's tail; theſe Colours can't be without, but the ſenſation of 'em muſt be rais'd in us by ſuch

V. Newton's Optics lib. 3 *p.* 157.

ſuch a determinate motion of the Organ. In both theſe, and a thouſand more Inſtances which might be given, 'tis evident we make very falſe Concluſions; we judge that in the Air which is in us; we fancy that painted upon the Wall, which is really no where exiſtent but in our Soul: And as we often make this miſtake, how are we ſure that we do not make it always? 'Tis certain the Colours which we very often fancy abroad, are at home; and ſo may, notwithſtanding our falſe Conceptions, all the Colours in the World (and were it my buſineſs, I could ſhew the ſame reaſon for all other ſenſible Qualities) be beholding for their exiſtence not to outward Bodies, but to our ſelves; not to the Object which we raſhly judge colour'd, but to a new Modification rais'd by Rays from the Object in our Soul. Methinks this ſtrongly proves the no-neceſſity of inherent Qualities; and if they are not neceſſary, then we are not ſure that in laying 'em down as a Principle we are in the right: Or, if it do not ſtrongly prove it, at the leaſt it ſeems to prove it, and therefore for any thing we know, it may prove it effectually: There may therefore be no ſuch things, and therefore that Doctrine which ſuppoſes 'em may be falſe.

LET. 4.

LET. 4. And the Exceptions againſt the Principle of *no-inherent Qualities* are, in my opinion very conſiderable; ſuch at leaſt as muſt take off all certainty of its neceſſary truth. They who hold this Principle declare, that they will admit of no Concluſion in any Science as valid, but what is the reſult of the evident connection of clear and diſtinct Ideas. Let us try their Principle by this method, and ſee how well the terms are connected: *Light is the reſult of the operation of a Body, or Syſtem of Bodies, in ſuch a determinate manner upon our Souls, by the mediation of our Organs of Viſion*; and the Objects of the other four Senſes, as Sound, Odour, *&c.* are, *the reſult of the operation of a Body or Syſtem of Bodies in determinate manners upon the Soul, by the mediation of the reſpective Organs of each Senſe.* Now before we aſſent to the truth of this Propoſition, and thereon build the *no-inherent Quality* Doctrine, we muſt ſecure diſtinct Idea's of its terms, and evidently ſee their connection. Body therefore, as far as our Idea of it informs us, is *an impenetrable, extended, movable, and diviſible Subſtance*; the Soul this Body acts upon, is a *thinking, ſelf-moving Principle*: Light is therefore, in other terms, *the effect of an impenetrable, extended, movable, and diviſible*

ſible, upon a thinking ſelf-moving Being: LET. 4.
But where is the connection 'twixt Cauſe and Effect in the caſe? Indeed, there is none at all; tho' we may expect that the foremention'd Subſtance ſhould excite in us an Idea of Magnitude, Figure, *&c.* yet that it ſhould cauſe Light, is what we can't conceive; and what, if we will ſtrictly adhere to the foremention'd Principle, we muſt not, can't aſſert, at leaſt, how are we ſure that a Syſtem of Bodies in ſuch a determine Motion and Modification, acting upon our Souls, will produce in 'em the Idea of Light? This we can't be ſure of, unleſs we ſee its neceſſity; whereas, that we are ſo far from ſeeing, as to have very much more reaſon to expect the contrary: And if we are not ſure of this matter, and the caſe is the ſame as to the Objects operating upon the other Senſes, then the Doctrine of no inherent Qualities is not ſafely to be rely'd upon; we are not ſure but that it may be falſe, And therefore, tho' we are ſure one of 'em muſt be true, we know not whether it is this or the former; and ſo in chooſing of either, we may be in an error; form a wrong notion of Light, and make that an objection againſt Scripture, which is falſe it ſelf.

Thus

LET. 4. Thus much may ſatisfie us, that Light before the Sun may, for any thing we know, be a very poſſible thing. We can't ſay we know what Light is; what therefore we take to be the true nature of Light we may be miſtaken in. When we therefore object againſt the exiſtence of Light antecedent to the Sun, we may entertain a wrong notion of Light: And therefore tho' Light in our ſenſe can't, in its true nature it may be capable of exiſting before the Sun's creation. • The *Principles*, we ſee, are exceptionable, upon which all the Theories of Light are founded: Therefore we know not which of 'em the moſt ſafely to pitch upon; therefore when we have pitch'd upon one of 'em, we don't know but we have 'lit upon the falſe one; therefore whatever notion we entertain of Light, we know not but it may be a wrong one; and if ſo, we can't with reaſon make it an exception againſt any thing. Indeed, to make what we know may be falſe an exception againſt the poſſibility of any thing, comes to no more than a bare *may be* againſt that thing. And therefore they who argue againſt Light before the Sun, can prove no more than poſſibly it may be an impoſſible thing; this ſhews not that it really is ſo; which ought however to be prov'd againſt

us, before we have juſt reaſon to recede, in the caſe before us, from the vulgar Expoſition. LET. 4.

Or ſuppoſing that ſome have found out the true nature of Light, 'tis certain they have not, whoſe notion makes it a thing apparently of the moſt difficult conception that it ſhould exiſt before the Sun: I mean, they who moſt pretend to it, the *Carteſians*: Their Theory of Light may be ſhewn to be falſe upon a thouſand accounts. It depends upon thoſe *Vortices* which the great Mr. *Newton* has demonſtrated to be *Chimera's*, and conſequently ſuch is their Light; beſides that Light, of whatever nature it be, is not propagated in an inſtant: Indeed, it ſpends 7 or 8 Minutes of an Hour in paſſing from the Sun to the Earth, as was firſt obſerv'd by Monſieur *Romer* by means of the Eclipſes of the Satellites of *Jupiter*; which Eclipſes, when the Earth is between the Sun and *Jupiter*, happen about 7 or 8 Minutes ſooner than they ought to do by the Tables; and when the Sun is 'twixt the Earth and *Jupiter*, they happen about as many Minutes later than the Tables require. There are a thouſand other Objections againſt the *Carteſian* Theory, which I need not now mention, inaſmuch as tho' we grant the truth of it,

V. Newton's Optics l. 2. pr. 11. pag. 77.

I be-

LET. 4. I believe it may be made appear that Light before the Sun is conſiſtent with it.

For, let us ſuppoſe the general Chaos to have been of the like nature with the *Carteſian* inform Matter; let that Chaos have been put into motion ſome time before the firſt Day, (ſuch a motion as they imagine) by the incubation of the Spirit of God; and thereby ſhatter'd into parts of all ſizes and figures flying off on all hands from the Chaos, and making to thoſe places where they are to form, or help to form, particular Bodies in particular Syſtems. Upon this ſuppoſition on the firſt Day, when we may imagine this Work conſiderably gone forward, may we not conceive the finer Matter in ſo rapid a motion ſomething luminous? We call fine Matter now in a rapid motion, luminous Matter; and a great deal of ſuch Matter diffuſed every where, we make the cauſe of Light; ſuch Matter, by the firſt Day, may we not ſuppoſe to have been wrought off in a pretty plentiful manner? I ſee nothing to the contrary; and accordingly there might have been Light before the Sun, even in the *Carteſian* notion, as nothing elſe in Mechaniſm is requir'd to effect it but minute parts of Matter, and they in a rapid motion

tion. Or if we muſt be ſuppoſing a cen- LET. 4.
tral Body neceſſary to emit Rays in order to the production of Light; why, the Chaos was ſuch, whoſe every part and particle were in a rapid motion; and there went from it Matter in abundance on all ſides, and of all ſizes; ſome of this might be of the like nature with our luminous Matter, and conſequently here might be, beyond all contradiction, Light before the Sun.

To this may be added another, I can't ſay improbable conjecture; That by the Light mention'd by *Moſes*, may be underſtood Light in a Secondary ſenſe; or the medium of conveyance which was to hand the Action from the central Body of every Syſtem or Vortex, to the moſt remote parts of it. Now this was the reſult of the diviſion of the Chaos into diſtinct Syſtems, and accordingly was in ſome meaſure actually in Nature upon the firſt Day. To object againſt this, That it can no more be call'd Light than the particles of our Æther, in the darkeſt Night, is no real Exception againſt it; for upon the Principle of no-inherent Qualities, what we uſually call Light, has really nothing in it like our ſenſation of it; even the Sun upon this Principle in reality has no more light in it, if we mean

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LET. 4. by it ſomething like the ſenſation we have of it, than the moſt opace Body in nature. Light, in this ſenſe, is no where, properly exiſtent, but in our Soul, and conſequently when we ſay that the Sun is a lucid Body, either we muſt mean that it is a Body which raiſes the ſenſation of Light in us, or nothing at all: Now the medium through which the Sun's operation is convey'd being that by which we come by Light, it may be call'd Light, as well as the Sun, tho' in a more remote ſenſe; and as it came into Being in ſome degree on the firſt Day, Light upon its account may on the firſt Day be ſaid to have been created.

This, or the foregoing Paragraph, or both together, as occaſion may require, contain what may render the firſt Days Work conſiſtent with all the Theories of Light which hitherto have been, or ever ſhall be erected upon the Principle of no-inherent Qualities: And as for thoſe which proceed upon the inherent-quality Doctrine, they are all very well conſiſtent with Light before the Sun: For, if Light be inherent in the lucid Body, then as that lucid Body might be created antecedently to its collection into a Syſtem, 'tis very eaſie for Light to be before the Sun; and that it might be ſo created, every one muſt

LET. 4.

muſt own. But this I need not enlarge upon; few now-a-days adhere to this Doctrine; I think none have lately thought it worth their while to erect a Theory of Light upon it. 'Tis true, Mr. *Newton*, who conceives the nature of Light to conſiſt in the confuſion of the Rays of Colours, calls *the Rays which make Objects appear red rubrific, or red-making Rays, thoſe which make 'em appear, yellow, green, blue, or violet, he calls yellow-making, green-making, blue-making, violet-making, and ſo of the reſt:* But then he tells us, *That if at any time he ſpeaks of Light, and Rays as colour'd, or endu'd with Colours, he would be underſtood to ſpeak not philoſophically, and properly; but groſly, and according to ſuch conceptions as vulgar People, in ſeeing all his Experiments, would be apt to frame. The Rays,* (ſays he) *to ſpeak properly, are not colour'd; in them there is nothing but a certain power and diſpoſition to ſtir up a ſenſation of this or that colour: For,* continues he, *as ſound in a Bell,* &c. *is nothing but a trembling motion, and in the Air nothing but that motion propagated from the Object, and in the Senſory a ſenſe of that motion under the form of ſound; ſo Colours in the Object are nothing but a diſpoſition to reflect this or that ſort of Rays more copiouſly than the reſt, in the Rays they are nothing*

V. Newton's Optics l. 1. part 2. page 90.

LET. 4. *thing but their diſpoſition to propagate this or that motion into the Senſory, and in the Senſory they are Senſations of thoſe motions under the form of Colours.* This I take notice of at large to vindicate my ſaying, That none have of late erected a Theory of Light upon the inherent-quality Doctrine: Some, I believe, have miſtaken Mr. *Newton* in this Particular, and fancy'd that he thought Colours inherent Qualities in what he calls colour'd Rays.

I think in what I have offer'd, I have ſufficiently vindicated *Moſes* with the Philoſophers, and ſhew'd, that Light before the Sun is no ſuch inconſiſtent thing: We can't ſay that we know what Light is, therefore we can't ſay that its ante-ſolar Exiſtence is inconſiſtent with the nature of Light. Or ſuppoſing that ſome know what Light is, 'tis certain they who moſt pretend to it are miſtaken about it; the Mechaniſm of the *Carteſian* Theory of Light is inconſiſtent with Nature and Experience; what is objected from it is therefore utterly invalid. Or ſuppoſing the *Carteſian* Theory true, *Moſes*'s firſt Days Light is conſiſtent with it. Indeed, it conſiſts with both the general Principles on which all the Theories of Light are founded, and therefore no Theory of Light whatever can ſhew any reaſon why

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in the Work of the firſt Day we ſhould recede from the vulgar Expoſition of the *Moſaic* Creation. LET. 4.

Take then this Paraphraſe of the Work of the firſt Day, together with that which preceded it: *As God before the beginning of the Hexaemeron, created the Materials of the whole World out-of nothing; and as he impreſs'd upon that vaſt Chaos ſuch motions as would make it anſwer the end it was deſign'd for; that is, make it fly into ſuch places, and form ſuch Syſtems as he deſign'd ſhould be in Nature; and as it had made conſiderable progreſs in theſe motions before the beginning of the firſt Day commenc'd; ſo it brought in the firſt Day by the firſt commencement of Light; which, after the Chaos was divided into ſuch maſſes as God Almighty pre-ordain'd ſhould be in Nature, and after theſe portions of Matter began to ſubſide to their reſpective Centres, by little ſhew'd it ſelf, as before it had lain dormant in the Body of the Chaos; and to the Bodies which now came to ſomething of a conſiſtency, and began to revolve upon their Axes, it gave, what* Moſes *calls, the firſt Day and Night.*

I don't determine what the nature of this firſt Light was. If the Doctrine of inherent Qualities be true, 'twas really in a primary ſenſe luminous Matter, Matter

LET. 4. inveſted with ſuch a quality as corre-
ponds to what in us is the ſenſation of Light. If this Doctrine is not true, it might be the firſt appearance of that finer Matter, which, ſoon after the diviſion of the Chaos was form'd, began to collect to a Head, and ſhew it ſelf; and which now in perfection in the Sun and Stars, is what raiſes in us what we call the ſenſation of Viſion. Neither do I pretend to determine how long the Chaos was in inteſtine motion before the firſt rough draught of Light appear'd: *Moſes* gives us no account of this, only by his naming the incubation of the Spirit of God, he ſhews us that it was, and poſſibly it might have been a conſiderable time; the nature of the Chaos might require ſome time before it could admit of the appearance of Light in the World. However, the determination of this point is no great matter, I believe 'twas beſides *Moſes*'s deſign to determine it: *His deſign was*, by way of Preface, *to tell us by whom, and in what condition the World came into Being, and what method was taken in order to reduce it into its preſent form*; this in general; *and after it became viſible, to let us know by what ſteps, and in what time it came to perfection*, in the Body of his Hiſtory.

As

As to God's being ſaid to divide the Light from the Darkneſs, and to call the Light Day, and the Darkneſs Night, if the Paraphraſe I have given be admitted, 'tis no difficulty in the Hiſtory; it only ſhews what progreſs the great Bodies in the World had made in their formation when the very firſt ſenſible dawning of Light appear'd: What we now call the Sun, was then got ſo much together, as though not to ſhew it ſelf a luminous Body, to make the place where it fix'd ſomething lighter than others; and the Planets were come to ſomething of a conſiſtency, and to a Revolution upon their own Axes, which made a kind of Day and Night, of the ſame length, tho' ſhort as much as poſſible of the perfection they are in at preſent. At the beginning of the Hiſtory of the Hexeameron Light appear'd out of Darkneſs, indeed, the nature of *Moſes*'s Hiſtory requir'd that it commence with the appearance of Light, being to be an account of the viſible formation of the World; which Light was the conſequence of the firſt motion, and of the proceeding of the Sun and fix'd Stars in their formation; and as ſoon as Light appear'd, it found the Planets revolving upon their own Axes, and from that time commenc'd what has LET. 4.

LET. 4. ever ſince in greater perfection continu'd the ſucceſſion of Day and Night. I have no more to ſay upon this Head. The ſecond Day's Work I ſhall account for in my next. I am,

SIR,

Your obedient, humble Servant,

A. B.

LETTER V.

SIR!

THE Work of the ſecond Day was the formation of the Firmament, and the ſeperation of the Waters under it from thoſe above it: *And God ſaid, let there be a Firmament in the midſt of the Waters; and let it divide the Waters from the Waters: And God made the Firmament, and divided the Waters which were under the Firmament from the Waters which were above the Firmament; and it was ſo: And God called the Firmament Heaven. And the Evening and the Morning were the ſecond*

Gen. 1. 6, 7, 8.

cond Day. Upon this Day's Work I ſhall LET. 5.
be very ſhort: Indeed, there is no conſiderable difficulty in it.

It conſiſts of two parts: The formation of the Firmament, the former; and the ſeparation of the Waters under the Firmament from thoſe above it, the later part. As to the formation of the Firmament, or Expanſum, 'tis what, upon the foregoing Expoſition, we muſt expect. At the end of the firſt Day we left all the Syſtems in Nature in their reſpective poſts, come to ſome degrees of perfection, and continuing to work more towards the ſtate and condition they are now in. Indeed, we muſt not yet imagine 'em come to any very conſiderable degree of perfection, their more groſs parts were ſcarce ſettled, and part of their Fluids, and ſome lighter Solids were yet every where diſpers'd throughout their Vortices, or Syſtems; which now on the ſecond Day came to more perfection; all the Solids which were hitherto diſpers'd, now ſubſided, and the Fluids in a great meaſure left the Expanſum clear. This is what is meant by the creation of the Firmament; and thus the firſt part of this Day's Work is accounted for.

LET. 5. And the ſecond is as eaſily accountable for as the former. Indeed, ſome will have it, That to talk of Waters above the Firmament, is to talk at an extravagant rate; to inſiſt upon an *Utopian* Ocean, a Syſtem of Fluids no where actually exiſtent in Nature: But this may poſſibly be a miſtake; and there may have been at this time, notwithſtanding what ſome have objected to the contrary, Waters above the Firmament.

Indeed, *Moſes*'s account of the Chaos implys that there were ſuch things: He calls it in an unlimited Expreſſion, the Waters; which implys, that a very conſiderable part of it was fluid Matter; and this was the notion of the Chaos embrac'd by the old Philoſophers. *Thales*, the Founder of the *Ionic* Sect of Philoſophers, was of this opinion; and from a fragment in *Euſebius* of *Philo Byblius*'s Verſion of *Sanchuniathon*'s *Phœnician* Hiſtory, we learn that this was the notion of the *Phœnicians*; the *Brachmans* in *India*, and the Prieſts of *Egypt* believ'd it; and ſeveral Expreſſions in the Poets, both *Greek* and *Latin*, ſhew that it was an opinion current in their times. And now, where is the abſurdity of talking of Waters above the Firmament? The Chaos was, as to its major part, a Fluid; and conſequently

quently, upon its diviſion into ſeparate Syſtems, and the coming of each Body of theſe Syſtems to perfection, as the portion of ſpace 'twixt the Bodies of each Syſtem, is call'd by the name of Firmament; is it improper to ſay when this happen'd that the Waters under the Firmament were divided from thoſe above it? Or the difficulty vaniſhes thus: The Firmament, we know, is the Expanſum 'twixt Syſtem and Syſtem, or 'twixt one Body and another in this or that Syſtem: But moſt Men are now agreed, that there is Water in each Syſtem, and in all or moſt of the Bodies, ſave the central, in each Syſtem. Suppoſe your ſelf therefore in what Syſtem you will, the Waters in the Syſtem above you, are the Waters above the Firmament, as it is taken for the ſpace 'twixt one Syſtem and another: Or place your ſelf in a given Body of a determinate Syſtem, and the Waters in all the ſuperior Bodies of that Syſtem are thoſe above the Firmament, as it is taken for the ſpace 'twixt one Body and another in the ſame Syſtem. In any of theſe caſes, the pretended difficulty is ſolv'd; and *Moſes* is far from being out in talking of the exiſtence of Waters above the Firmament. LET. 5.

LET. 5. But beſides theſe, which yet are all or any of 'em very ſufficient Solutions of the difficulty before us, poſſibly it may be made appear, that tho' we ſhould ſuppoſe *Moſes* to have meant the ſame with the moſt common Hypotheſis, which by the Waters above the Firmament underſtands thoſe in the Clouds, ſtill what he advances is conſiſtent with Philoſophy: It muſt be granted to be no force upon the Words thus to conſtrue 'em; indeed, this conſtruction has been put upon 'em by moſt. God call'd the Firmament Heaven; and Heaven, we know, in Scripture, often ſignifies no more than the ſpace 'twixt us and our atmoſpherical Regions: Thus *Job* calls the Clouds *the Bottles of Heaven*, *Job* xxxviii. 37. And *Moſes* tells us, that at the approach of the Deluge, God opened the *Windows of Heaven*, Gen. vii. 11. He ſpeaks alſo of *the Windows of Heaven, and the Rain from Heaven*, in the 2d Ver. of the 8th. *Daniel* calls the Winds, *the Winds of Heaven*; and *Joſhua* tells us of the *ſmoak of a City aſcending up to Heaven*. Theſe, and many more Texts to the ſame purpoſe, unexceptionably demonſtrate, that by Heaven may be meant no more than our atmoſpherical Regions; and inaſmuch as the Firmament is call'd Heaven, it may upon this occaſion ſignifie

ſie the ſame; and conſequently, if there LET. 5.
is no hindrance from Philoſophy, *Moſes*
may mean the Waters in the Clouds by
thoſe above the Firmament: But then
that this runs counter to Philoſophy, we
are given loudly to underſtand; for the
Clouds, you muſt know, are no farther
neceſſarily exiſtent in Nature, than as they
are drawn by the Sun, their Foſter-father,
by way of Vapour, from off the Surface
of the Earth; whoſe abſence ſhould we
ſuppoſe, at the ſame time we remove the
neceſſity of the exiſtence of an Atmo-
ſphere; and conſequently, inaſmuch as
the Sun was not in Being till after this
Day, accordingly there could be no ſuch
thing as an Atmoſphere, no Clouds, no
Waters above the Firmament.

Poſſibly, as formidable as it ſeems, this difficulty may be remov'd: For inaſmuch as the exiſtence of the Atmoſphere, as it depends upon the Sun for it, is owing to local motion; to the power of the Rays of the Sun, which darted upon the Earth, are thence reverberated, and thence carry along with them the lighter ſuperficial Fluids; conſequently, tho' the Sun were remov'd, (could we ſuppoſe ſuch a motion after its removal) we ſhould ſtill retain an Atmoſphere: And if we have good grounds to ſuppoſe ſuch a motion antecedent

LET. 5. cedent to the Sun's appearance, we may expect an Atmoſphere antecedent to it too; but good grounds we have to ſuppoſe ſuch a motion, no leſs than the conſideration of that inteſtine motion each Planet was in at, and for a conſiderable time after the diviſion of the Chaos; which was of neceſſity extraordinarily great, ſo as that a great part of it would not be loſt in the more ſubtile parts till a conſiderable time after the formation of the Planet. By this motion, would not the ſuperficial Fluids be vehemently agitated, and in heat? At leaſt, to ſuch a conſiderable degree, undoubtedly, as to emit Vapours ſufficient to form an Atmoſphere.

Neither are we in this caſe, in order to the formation of the Atmoſphere requir'd, altogether deſtitute of the aſſiſtance of the Sun; 'tis true it was as yet far from being come to perfection, and yet it may be ſuppos'd to be very conſiderably gone in its formation; ſo that tho' it were not yet a perfect globular and lucid Body, it might however emit a conſiderable confus'd Light, and a proportionable Heat; both to ſuch a degree as would enable it to have ſome effect upon the Planets in its Syſtem, ſo much as would

would force from the Surface of each what Fluids would form ſomething of an Atmoſphere. LET. 5.

At leaſt, if neither of theſe cauſes ſeparately conſider'd will be admitted to be able to produce the effect requir'd, we may unite 'em together, and then there can't poſſibly be any doubt of the matter. If the inteſtine motion of the ſuperficial Fluids of each Planet, whichever we muſt believe was very conſiderably great, won't be admitted to be able to carry 'em off in the quantity, and to the height aſſign'd; we may add to this that from the Sun, as yet but working it ſelf into perfection; which, tho' it muſt be conceiv'd to want much of that influence it has at prefent, yet this deficiency is more than made up by the conſideration of the condition the Matter was in which it was to carry off. The Fluids of our Globe were then in a rapid inteſtine motion; in ſo violent a heat, as to ſteam in great quantities into the Air: They ſtood therefore in proportionably leſs need of the Sun's power, ſo as that what it then had may well be ſuppos'd ſufficient to carry 'em up ſo high as to form thoſe Clouds which we may ſuppoſe *Moſes* means by the Waters above the Firmament.

Thus

LET. 5. Thus much I think ſufficient to clear the Work of the ſecond Day. In the third, ſeemingly, greater difficulties are to be met with; which, as they would make this Letter too long before I could clear 'em, I will not trouble you with 'em now, but put 'em off till the next opportunity I ſhall have of writing to you. I am,

SIR,

Your obedient, humble Servant,

A. B.

LETTER

LETTER VI.

SIR!

THE work of the third Day was the draining of the Earth, and the production of the Vegetables. *And God said, let the Waters under the Heavens be gather'd together into one place; and let the dry Land appear: and it was so: and God call'd the dry Land Earth, and the gathering together of the Waters call'd he Seas: and God saw that it was good. And God said, let the Earth bring forth Grass; the Herb yielding Seed, and the Fruit-tree yielding Fruit after his kind, whose Seed is in it self upon the Earth; and it was so: and the Earth brought forth Grass and Herb yielding Seed after his kind, and the Tree yielding Fruit whose Seed is in it self after his kind: and God saw that it was good: And the Evening and the Morning were the third Day.* Gen. i. 9, 10, 11, 12, 13.

Two considerable difficulties are to be clear'd up before we can dismiss the work of this Day reconcil'd with Philosophy; how the Waters could be drain'd into the Channels of the Seas in the time allow'd 'em, and how the Herbage could

shew

LET. 6. ſhew it ſelf in ſo ſmall a time too, and that antecedently to the appearance of the Sun. Theſe two things, many tell us, could not poſſibly be effected in the time aſſign'd by the Hiſtory; and therefore ſome, inſtead of a Day, have allow'd a Year for the removal of the Waters, and the raiſing of the Vegetable Kingdom. Indeed, this is generouſly done, tho' I think with no great thanks due from the Hiſtorian, if he valu'd his Sincerity half as much as too many do their fancy'd Diſcoveries in Philoſophy. I think he writ at a time when Days were of the ſame length they are of now; and no Hiſtory in the World appears with more unaffected ſimplicity than his does; whereas what is it better than a ſham if he calls that one Day which is really 365 of what his Reader apprehends, without in the leaſt intimating what was his meaning? If this were ſo, and the reſt of the Hiſtory were like it, or in any degree anſwerable to it, it would certainly ſink its reputation with all Men of Reaſon: But I believe we have no need to think it ſo, but that the two great Works of this Day might be compleated in the time aſſign'd in ſuch a ſenſe of the word Day, as is now and always has been uſual with Hiſtorical Writers.

V. Whiſton's Theory, p. 79. &c.

Let

Let us try what we can make of the former part, the draining of the Continent; and ſee if we can clear it within ſuch a compaſs as to leave ſome ſpace too for the appearance of Vegetables upon the face of the Earth. 'Tis certain, had the Waters been put upon that occaſion into ſuch a motion as is at preſent to be found in divers parts of Nature, a little time would have hurry'd 'em into the Channels of the Seas. In this groſs Medium of ours, Sound, which yet is not the ſwifteſt mover, is known to be propagated to admiration, even to vaſt diſtances, with wonderful celerity. Mr. *Boyle* tells us, That at the Siege of *Oſtend* the thunder of the Ordnance was heard 120 Miles off; and the Virtuoſos of the Academy *del Cimento* have calculated with great exactneſs the time which is requir'd for Sound to be propagated through a determinate ſpace. They found by experience that Sounds paſs equal ſpaces in equal times, and that whether the Wind be for or againſt 'em: And they found likewiſe, that if a piece of Ordnance were fir'd off at a Mile diſtance from the place of obſervation, 'twixt the appearance of the flaſh of the Fire, and the approach of the Report, there paſs'd 10 half Seconds eſtimated by the vibration of

LET. 6.

V. Experiment *del Cimento*, p. 138, *&c.*

LET. 6. of Pendulums. This obſervation gave 'em opportunity of determining accurately the time of the propagation of Sound: For, inaſmuch as Light may ſafely be ſaid to be propagated in an inſtant in this caſe, being not above 8 Minutes in paſſing from the Sun to us, and conſequently not two full Fifths, or $\frac{2}{1296000}$ of a Minute in paſſing the Mile aſſign'd, that portion which paſs'd 'twixt the Flaſh and the approach of the Report, may ſafely be taken for the time of propagation: And if ſo, it is diſcover'd that Sound is propagated a Mile in five Seconds, therefore in a Minute 12 Miles; in an Hour 720, and in a Day 17280. And inaſmuch as common Air is a very groſs medium in compariſon of the purer Æther, perhaps as much in proportion as to groſſneſs of conſiſtency as Water is to common Air; 'tis hence evident that Sound would be propagated in a Day in the Æthereal Regions through the ſpace of 14688000 Miles. Now Sound is propagated in a bodily Vehicle; let the Waters therefore at the Creation be put into ſuch a motion, and in how ſmall a time would they be drain'd into the Seas.

But then the motion of Sound is ſlow in compariſon of that of Light, which had been thought propagable in an inſtant

ſtant from the remoteſt diſtance, had not LET. 6.
Monſieur *Romer* diſcover'd by obſerva-
tions on the Eclipſes of the Satellites of
Jupiter, that it ſpends about 8 Minutes in
paſſing from the Sun to us. And is not
this a ſtupendouſly ſwift motion? At
this rate it goes 405000000 Miles in an
Hour, and twenty four times as much, or
9720000000 Miles in a Day: And yet
Light too is convey'd in a corporeal Ve-
hicle. Put the Waters therefore into this
or the thouſandth part of this velocity,
and how many Minutes will they be in
quitting the Earth? But then, what ſhall
put 'em into this motion? 'Tis out of the
power of Nature; and to ſay that God
might, is not to ſolve the Difficulty, but
to cut the Knot. We already ſuppoſe ſe-
cond Cauſes to have had a hand in the
Hexaemeron; we muſt ſtand therefore by
them in accounting for this Phænome-
non; and if we will do any thing, we
muſt ſhew that according to the preſent
Laws of Fluids, the Waters might have
been brought into the Channels of the
Seas within the compaſs of the Hi-
ſtory.

Before I attempt this, give me leave to
take notice, that the diſcovery concern-
ing ſound of the *Florentin* Virtuoſos,
together with that of Monſieur *Romer*,

LET. 6. concerning the celerity of the propagation of Light, may enable us to ſolve two not unpleaſant Problems; to wit, The diſtance of the Clouds in any Thunder-ſhower given, and the time the Rain takes in deſcending in that Storm. 'Tis certain the propagation of the Lightning in the caſe may well be call'd Inſtantaneous: For, imagine the Clouds as high as you will, ſuppoſe 5, 6, nay 10 Miles, which is a vaſt conceſſion; in the ſuppoſition of 10 Miles, the Light is communicated in a little more than 19 Fifths; to wit, in $19\frac{168}{540}$, or throwing away the Fractions in $\frac{12}{1296000}$ of a Minute of an Hour; and conſequently in 5 Miles, which poſſibly is their greateſt height, but half as much. Now taking it for granted, that the Lightning is propagated in an inſtant, conſequently if we can eſtimate the time 'twixt the Flaſh and the approach of the Thunder, which may be done by ſuch a Pendulum as the *Florentines* made uſe of, or by a good Clock, or Watch which have the Seconds motion with Subdiviſions; that time gives us with great exactneſs the diſtance of the Cloud: If there paſs 10 half Seconds, then the diſtance is 1 Mile; if 10 Seconds, then [illegible] if 20 Seconds, or one third of a Minute, 'tis 4; and ſo on: And, perhaps, the

the time the Rain takes in deſcending LET. 6.
may be diſcover'd too; for 'tis very obſervable, that as a great flaſh of Lightning is very often apparently follow'd by a great clap of Thunder, which yet really happen'd at the ſame time, tho' it ſeem to follow to us by reaſon of the comparative ſlowneſs of the propagation of Sound; ſo ſome time after the Thunder follows a ſudden increaſe of the Shower, which yet we have reaſon to believe began at the ſame time with the Lightning and Thunder, upon the firſt falling of one piece of a ſuperior Cloud upon the lower. Reckoning therefore the time 'twixt the Flaſh and the fall of the Rain; and knowing by the former method the diſtance of the Cloud, you have the time which the Rain took in deſcending thro' the ſpace given. The uſe of the former of theſe two Problems may be to make a gueſs, whether the Lightning will do any damage, it being in leſs danger of ſo doing the higher the Clouds are. The other, I think, is not without its uſes; but I can't ſtay upon 'em at preſent, enough already by the bye.

I now come to examine what time the Rain would take in draining from off the Earth into the Channels of the Seas, ſuppoſing 'em firſt ſettled upon it, and

LET. 6. admitting the preſent Laws of Fluids to have took place upon this great occaſion. This is a task difficult enough to be done exactly; indeed it requires much more knowledge of the ſwiftneſs, declivity, *&c.* of the Rivers of our Globe than can yet be pretended to: However I will make a gueſs at it, which may be ſufficient to let us ſee whether in the circumſtances above-mentioned they could be clear'd off in the time aſſign'd by *Moſes*. To this purpoſe I will aſſume with Mr. *Halley*, (in *Philoſ. Tranſact. Numb.* 189.) that at *Kingſton-bridge* the breadth of the Channel of the River *Thames* is 100 Yards, and its depth 3 Yards; hence the profile of the Water at that place is 300 ſquare Yards; this multiply'd by 48 Miles, (which I will allow with him the Water to run in 24 Hours, at 2 Miles the Hour) or 84480 Yards, gives 25344000 cubic Yards of Water to be evacuated every Day: Now in a cubic Mile of Water there are 5451776000 cubic Yards, or 215 times as many as are thrown off in a Day by the *Thames*, and ſomething more: But I will here throw away all Fractions, they ſerve only to make the Calculation tedious, and may ſafely be rejected where we aim not to be exactly nice; and therefore 215 Rivers in the ſame circumſtances the *Thames*

V. Harris's Lex. Tech. Sub voce, *Vapour.*

Thames is in at *Kingſton-bridge*, will eva- LET. 6.
cuate one cubic Mile of Water in a Day.

I muſt enquire in the next place how much Water is contain'd in the Ocean, and what proportion the breadth of the *Thames* at *Kingſton-bridge* has to the circumference of the Earth. The Earth's greateſt Circle, according to the late Obſervations of the *French* Mathematicians, is 24849 *Engliſh* Miles, and therefore its Diameter 7847, and conſequently the Area of that Circle is 48336689, and the Earth's Spherical Superficies is 193346756 ſquare Miles. Now if the Surface of the Sea is half of the whole terraqueous Globe, and its depth by a compariſon of one place with another, a quarter of a Mile, then it contains of Water 24168344 and an half cubic Miles. The next Queſtion is, what the proportion 'twixt the breadth of the *Thames* at *Kingſton-bridge* is, or rather 'twixt 215 Rivers of its breadth, and the circumference of our Earth? Two hundred and fifteen Rivers of this breadth, contain 21500 Yards, and conſequently they are to the circumference of the Earth, which contains 43382240 Yards, as 1 to [illegible]. Now the whole Surface of the Earth being overflow'd with Water in its condition antecedent to the excavation

LET. 6. of the Channel of the Ocean, 'tis evident that the perpendicular height of the Waters was then but one eighth part of a Mile, and conſequently upon the Channels ſubſidency, there would but be 1208[illegible]172 and a quarter cubic Miles of Water to be thrown from off the Surface of the Earth; which, what time they would take in draining into the Seas Channels, according to the preſent Laws of Fluids, I ſhew after this manner.

If breadth of 21508 Yards give one Mile in a Day, then breadth of 43382240 Miles will give 2017; and if 2017 cubic Miles of Water are thrown off in a Day, then 736205 will be thrown off in a Year, and conſequently all the Waters upon the Surface of the Earth in 16. Now in this *Calculus* I proceed upon the velocity generated by the depth and declivity of the *Thames*, whereas the real depth of the Water, as one eighth of a Mile, was 220 Yards; and conſequently if depth of 3 Yards generate velocity which will throw off the Waters in 16 Years, or 5840 Days, then depth of 220 Yards will generate velocity which will throw 'em off in ſome thing more than 79 Days; taking it for granted that the velocity continues at the ſame, till the Waters are gone: But this it does not, but decreaſes in proportion

tion to the falling of the Waters; and LET. 6.
conſequently, in order to determine the
matter, we muſt proceed upon the mean
velocity; which being done, all the Waters upon the Surface of the Continent would be ſwept off into the Channels of the Seas in about 159 Days.

This *Calculus* proceeds upon the declivity of the *Thames*, or the inclination of the Plane it runs in to that of the Horizon. There are a great many Rivers very much ſwifter in the World, as running in Channels of greater inclination, as every one knows who is converſant in Books of Geography; which therefore had I proceeded upon, I had drain'd off the Waters in far leſs time; had I proceeded upon the *Po*, which *Riccioli* in his *Geographia Reformata* tells us, runs 4 Miles in an Hour, I had brought 'em off in half the time aſſign'd; or had I proceeded upon ſuch Rivers as run twice as faſt as the *Po*, I had clear'd 'em off in proportionably the leſs time. Indeed, I don't think that the Current of the *Thames* is of a velocity the mean 'twixt the ſwifteſt and floweſt upon the face of the Earth, neither poſſibly that of the *Po*, or one as ſwift as it. Till we are better ſtock'd with Obſervations, we can only make Conjectures more or leſs plauſible

LET. 6. in theſe matters; And were we as well furniſh'd with Obſervations of this nature as poſſible, I believe we ſhould find it utterly impoſſible, in the time aſſign'd by *Moſes*, for the Waters already ſettled upon the Earth's Surface to be drain'd thence into the Channels of the Seas.

How then ſhall we get rid of 'em? Even by giving up two extravagant and groundleſs Notions: *Firſt*, That they were all ſettled upon the Surface of the Earth before they came into the Channels of the Seas: And *Secondly*, That the draining of thoſe that really were ſo ſettl'd did not commence till the beginning of the third Day; whereas that all the Waters were ſettled upon the Surface of the Earth before they came into the Channels of the Seas, *Moſes* does not ſay; neither indeed is it very Philoſophical to believe: For, all the Materials of each Planet are ſuppos'd to be in a confus'd jumble in their Chaotic condition, Solids and Fluids every where intermix'd in a moſt irregular manner throughout the whole Expanſum taken up by each Planet in the ſtate antecedent to its ſubſiding. This is the moſt juſtifiable notion of a Chaos; indeed a Syſtem of Bodies in ſuch a ſtate as this can be no better expreſs'd than by the word Chaos; neither is any thing more

more abſolutely a Chaos than ſuch a med- LET. 6.
ly of Bodies. Upon which ſuppoſition, where is the abſurdity in imagining that there was a conſiderable Syſtem of Fluids about that place where the Center of Gravity of the Earth was fix'd? ſo many there might be as would go a conſiderable way in that quantity of Water we now find in our Seas; which therefore upon the ſubſiding of the heavieſt Solids muſt recede from the Center, and lie upon 'em, and the lighter Solids following in all places not predetermin'd for the Seas Channel, muſt preſs 'em from the places they fell upon to thoſe they left open to receive 'em; and this preſſure would ſoon bring 'em into the Channels of the Seas.

Or if this be look'd upon as too bold a ſuppoſition, that ſo many Waters could be found nigh the Center as would come as nigh as I would have 'em to the quantity in the Seas; 'tis to be conſider'd that the heavier Solids from all the Regions of the Chaotic Globe would bring abundance along with 'em in their ſubſiding; and the lighter Solids too muſt bring in vaſt quantities, as they muſt paſs thro' [illegible] therefore take part along with 'em. The quantities brought in on both theſe occaſions, any one who conſiders what

LET. 6. what reaſon we have to believe that the Solids vaſtly exceed the Fluids as to quantity within the diſtrict of our Earth, and therefore in their ſubſidency muſt carry along with 'em proportionably the more Fluids; theſe vaſt quantities join'd to the former, I think in all reaſon any one muſt look upon as able to effect what I contend for, to go a very great way in that quantity of Water which is now to be met with about our Globe.

Now upon this ſuppoſition we have got vaſt quantities of Waters into the Channels of the Seas on the ſecond Day, probably three quarters of what they now contain. Indeed, the conſideration of what the Solids from all parts would bring along with 'em, and of the vaſt exceſs in proportion of the Solids above the Fluids in our Syſtem, makes this conjecture very highly probable: But then it muſt be confeſs'd that a conſiderable quantity of Waters did really follow the lighter Solids, all thoſe, I mean, which the Solids in their ſubſiding did not take along with 'em, and they ſettled for a while upon the face of the Earth; notwithſtanding which, where's the neceſſity of ſuppoſing 'em to continue ſo [illegible] the third Day? Indeed, ſome are ſo far from believing this, as to think that they were

were really drain'd off on the ſecond. LET. 6.
Which Notion, tho' we don't admit of,
'tis certain what *Moſes* ſays does not im- *V. Willet on Gen. i.*
ply that they continu'd ſettled upon the Earth till the third Day; and as *Moſes* does not aſſert it, I think Reaſon bids fair for the contrary ſuppoſition. On the former part of the ſecond Day the Expanſum appear'd; that is, the groſſer and lighter Solids ſubſided; and then of courſe follow'd the ſubſidency of the Fluids; which was no other, in the former ſenſes I have given of 'em, than the diviſion of the Waters under the Firmament from thoſe above it: The Fluids therefore that remain'd after the ſubſiding of the Solids fell upon the Earth about the middle of the ſecond Day; from which time, muſt we not believe that they made towards the Channels of the Seas? Indeed, without a Miracle, they did; and their draining from off the Earth from that time commenc'd: Neither do I think that all that ſubſided were thus drained off. Vaſt quantities might be caſt off on the ſecond Day, as I have ſuppos'd already, in order to the formation of an Atmoſphere, by the inteſtine heat of the Earth, aſſiſted by the conſiderable influence and power of the Sun.

Let

LET. 6. Let us ſuppoſe then three quarters of the Waters contain'd in our preſent Seas in their Channels, when the remaining quarter fell on the ſecond Day; of that quarter, half, we know, would fall into the Seas immediately, therefore one 8th would only remain to be drain'd; a great part of which was thrown off into the Air to form an Atmoſphere; and of the reſt part being conſum'd in the impregnation of the lighter ſuperficial Earth, and part immediately making into thoſe vaſt inland Cavities which now when fill'd we call Lakes, Meres, &c. ſome of which we know are prodigious ones, and many of 'em communicating with the Ocean, would help very much to the removal of the Waters; what remain'd would in a little time, by the middle of the third Day, conſidering how vaſtly their fall would encreaſe their natural velocity, be ſo conſiderably drain'd off, as to leave the greateſt part of the Earth's Surface apparent; and to give the firſt occaſion to what has ever ſince, ſave in the Deluge, continu'd, the diſtinction 'twixt dry Land and Water, the Earth and Seas.

And now, having drain'd off the Waters, 'twill be ſomething leſs difficult to furniſh the Earth with Vegetables. 'Tis true, they had but a little time to appear

pear in; but then we are not oblig'd, to LET. 6.
aſſert, that in this time they came to their full perfection; 'tis enough if the World was in its Meridian Glory upon the formation of *Adam*. The Queſtion then is, How they could come to any conſiderable perfection; indeed, how they could appear at all on this Day? There was as yet no Sun, and conſequently this was a time very incongruous for the raiſing of the Vegetable Kingdom. Or ſuppoſing that they might appear, yet 'tis impoſſible to conceive that they could come to ſuch perfection as the Hiſtory before us requires. Theſe are the Exceptions againſt the ſecond part of the third Day's Work; which I believe, without much difficulty may be taken off.

For, what is primarily requiſite in order to the production and perfecton of Vegetables, beſides a fermentative Soul, and *Succus Nutritius*, is a competent degree of Heat, or Motion; by this the fermentative Matter is enabled to operate, to open the little Ducts and Canals of the Plant in Embryo, ſo as to render it capable of admitting the inert Particles the Neighbourhood can furniſh it with in order to its growth or increment. Now here 'tis evident, that by how much the greater

LET. 6. greater and more vigorous is the Heat or Motion, and by how much the fermentative Soul is more active, which it is proportionably to the quantity of the Heat; and by how much the nutritive Matter is more plentiful, by ſo much the ſooner will the Plant be rais'd and perfected: So that if we have reaſon to believe that the firſt Vegetables had ſuch a Heat or Motion acceſerating their production, as there never was in the Earth's ſuperior Strata ſince, and if theſe Strata were proportionably furniſh'd with prolific Matter, and if the Seeds of Vegetables were anſwerably ſtock'd with fermentative Principles; if we have reaſon to believe that all theſe things were thus, 'tis not to be imagin'd how ſoon we might expect Vegetables in conſiderable perfection: But all theſe things we have reaſon to believe were thus; and therefore we have the ſame reaſon to expect Vegetables in conſiderable perfection in a very little time.

For tho' the Sun was not as yet come to its full perfection, it had doubtleſs a very conſiderable influence upon the Surface of the Earth; and in the ſuperficial parts of the Earth there was of neceſſity a prodigious inteſtine motion, which they yet retain'd ſince the diſſolution of the Chaos, ſuch as never was ſince; which joining

joining with the heat of the Sun, might LET. 6.
in a little time raiſe the Vegetable King-
dom; eſpecially conſidering that they had
proportionably fit Materials to work upon:
Seeds certainly ſtock'd with very compe-
tent quantities of fermentative Matter, as
they were to be the Standards of their re-
ſpective Kinds; and the ſuperficial Earth
was every where even ſaturated with fluid
Particles; which things put together,
render a very haſty production of Vege-
tables no inconceivable thing; even per-
ſuade us reaſonably to expect that the
Vegetables might make very conſiderable
progreſs in part of this Day, ſo as to be
able to come to perfection by the creation
of *Adam*.

There is one Exception againſt this
proceeding; That we have ſeveral Vege-
tables, which a great degree of Heat will
produce, which, had the Heat been leſs,
would have laid dormant in the Earth;
and we have alſo many Vegetables which
being rais'd by a moderate Heat, when
one more violent approaches, are de-
ſtroy'd. Hence it is that we have a ſuc-
ceſſion of Vegetables, ſome growing and
ſome dying through all the Seaſons of
the Year; and hence that many of the
Vegetables return again in Autumn, which
made their firſt appearance at the entrance
of

LET. 6. of Spring. Hence it is that colder Countries, ſuch as are conſiderably remote from the Northern and Southern Tropics are furniſh'd with ſeveral Claſſes of Vegetables, which are altogether ſtrangers to Regions nigh and under the Line; and on the contrary, ſuch Plants diſplay themſelves in warmer Climates as are intirely foreign to places beyond the Tropics and nigh the Poles. This ſeems to imply, that the production of the Vegetable Kingdom requires a gradual motion, which if it were wanting, a great many Claſſes of Vegetables would be loſt; and therefore inaſmuch as that was uniform, which I ſuppoſe had the chief hand in their firſt production, conſequently it could not poſſibly bring forth the whole Vegetable Kingdom, which as we muſt ſuppoſe was produc'd, the cauſe I have aſſign'd muſt be look'd upon as incapable of effecting what I contend for. If the Heat were ſufficient to raiſe thoſe which requir'd moſt, would it not kill thoſe which requir'd leaſt? And if it only avail'd for the later, we ſhould want all the Species of the former; ſo that we could not expect what we muſt believe *Moſes* ſpeaks of, a perfect and compleat production of the entire Vegetable Kingdom.

In

In anſwer to this, I grant the truth of the Obſervation, and yet deny that it deſtroys my Suppoſition. There are ſome Vegetables which require more Heat in order to their production and perfection than others, becauſe the fermentative Principle in ſome is more inert, and groſs, and unactive, than it is in others; and their nutrimental Vehicles are not ſo eaſily parable; and conſequently a ſmall motion reſulting from a gentle degree of Heat, can't have ſufficient effect upon 'em: And there are others which are rais'd by a gentle Heat, by reaſon of the contrary Qualities: Theſe later die in that Heat which the former require; and the former lie dormant, when the later are in their beauty: That is, theſe things happen now upon the face of the Earth, ſo that we muſt not expect now to ſee the whole Vegetable Kingdom at one time in perfection; neither might we, were the greateſt Heat requiſite at the ſame time every where upon the face of the Earth: For, ſhould we ſuppoſe ſuch a contemporary production of Vegetables, thoſe which requir'd leaſt Heat, would, by reaſon of their porouſneſs, & ſoon burnt up, [illegible] not Fluids [illegible] to that [illegible] which [illegible] 'em; [illegible] cauſe [illegible] would

SECT. 6. 'twould be thus now, 'twould be ſo at their originary production? No ſuch matter: For, let the Heat be ſuch as would have a ſufficient effect upon thoſe which requir'd moſt, ſtill it could not injure thoſe which requir'd leaſt: Whatever exhal'd from 'em, they had Fluids enough to ſupport themſelves, and for the Heat to continue to prey upon; even the firſt πλοῦς, which is the ſame as the ſuperficial Strata of the Earth, impregnated with Fluids to a conſiderable depth and degree.

I ſhall add no more upon this Day: I have made it appear, that the Waters might have been drain'd, and the Vegetables produc'd in the time aſſign'd. This is all I was to do: And ſtill farther difficulties be found, this muſt vindicate the third Day's Work with Reaſon and Philoſophy. I am,

SIR,

Yours, &c.

A. B.

LETTER VII.

SIR!

LOoking over the Hiſtory of the Work of the fourth Day, I find that upon my foregoing Expoſition it will not need much clearing. *Moſes*'s account of the Work of that Day is this: *And God ſaid, let there be Lights in the Firmament of Heaven to divide the Day from the Night; and let them be for Signs, and for Seaſons, and for Days, and for Years: And let them be for Lights in the Firmament of Heaven, to give light upon the Earth; and it was ſo. And God made two great Lights; the greater Light to rule the Day, and the leſſer Light to rule the Night: He made the Stars alſo. And God ſet them in the Firmament of the Heaven to give Light upon the Earth, and to rule over the Day, and over the Night, and to divide the Light from the Darkneſs: And God ſaw that it was good. And the Evening and the Morning were the fourth Day.* Gen. i. 14, 15, 16, 17, 18, 19.

The grand Objection againſt this Day's Work, as vulgarly interpreted, is its monſtrous diſproportion to what is allotted to the other five; That the Sun, Stars, and *V. Whiſton's* Diſcourſe on the *Moſaic Creation*, p. 54, 55. *&c.*

DET. 7. and Planets; that is, that infinite number of Bodies and Syſtems of Bodies thro'-out the whole Univerſe ſhould take up but one Day in their formation, when our ſingle Earth, one perhaps of the leaſt and moſt inſignificant in the whole collection, muſt have five beſtow'd on it, to bring it ſelf and its appurtenances into perfection. This is look'd upon as wonderfully ſtrange and monſtrous, as unbecoming the great God, and conſequently not to be attributed to him without the higheſt affront to his Wiſdom. A curſory view of the World about us, will ſoon give us ſuch a ſenſe of this diſproportion as will make us for ever ceaſe to dare to attribute ſuch Conduct to the God of Heaven. There are, even in our Syſtem, ſeveral Bodies conſiderably greater than our Earth; it is not the 60th part as big as *Jupiter*, nor the 30th of *Saturn*, nor the 60000 as the Sun; why then ſhould they be thruſt into a corner of a Day, when it has ſo long a time allow'd for its formation? But then the Stars above our Syſtem to bring in them too infinite in number and ſtupendous in bigneſs as they are, to bring each of them within half the compaſs of a Moment, if their prodigious number will allow each of 'em the leaſt conceivable point

of

of time, is not this the very height of Extravagance? What a vaſt number of Stars are viſible to the naked Eye, notwithſtanding all the diſadvantages we labour under in a clear Evening? And yet diſadvantages we labour under very conſiderable in the caſe. The leaſt diſtance of the Heaven of the fix'd Stars from us, for ſuch is that deliver'd by *Tycho*, is 14000 of our Earth's Semidiameter, or 57414000 Miles; the generality of the *Ptolemaic* Aſtronomers aſſert it to be 45225, or 185467725 Miles. The *Copernicans*, by reaſon of the prodigiouſneſs of its diſtance, judge it indeterminable; and thoſe of 'em who have ventur'd to determine it, witneſs the *Calculi* of *Lansbergius*, *Galileo*, and *Kepler*, fix it at a wonderful, a ſtupendous diſtance. Now, if ſo great a number of Stars appear to us notwithſtanding this ſo great diſadvantage of prodigious diſtance, how many Millions might we ſee were we proportionably nigher 'em than we are? Were our Atmoſphere of the moſt advantageous figure for Refractions, and were it abſolutely pellucid, without any opace impedimental Ingredients? That we ſee not now the thouſandth part that are in Nature, the late diſcoveries of the Teleſcope gives us very probably to conjecture; that

LET.

SECT. 7. Inſtrument has undeceiv'd us in a notable Particular; it lets us ſee that the *via lactea* is made up of an infinite number of Stars, which by reaſon of their diſtance only affect us with a faint and general Light; and may there not be other *via lactea's* innumerable, and at ſuch diſtances, as not to be able to affect us with any Light at all? Add to this, That as the Stars are almoſt infinite in number, ſo the major part of 'em are ſtupendous in magnitude; the fix'd Stars more eſpecially; of which one of the firſt magnitude, according to the Calculation of *Lansbergius*, is 67 times as big as our *Magnus Orbis*. 'Tis true, this Calculation was leſſen'd upon *Gaſſendi's* Animadverſion, that the Teleſcope which cuts off the ſpurious Rays, repreſents the Stars truer than the naked Eye: But then, be this as it will, 'tis certain they are of a very vaſt and wonderful magnitude. Now to allow the Earth five Days for its equipment, and to include at the ſame time theſe numerous and mighty Bodies, many of which are Planets, and therefore challenge as much time as the Earth, and the reſt, as being of greater perfection, more: to include all theſe within the limits of one, is it not abſurd? To give them but one 6th of the time of the Hexaemeron

in

in order to their formation, is it not ir- LET. 7.
rational? and conſequently, to ſuppoſe this of God, is it not Blaſphemy?

Indeed, this Objection ſeems at firſt ſight to bear hard upon the moſt vulgar Expoſition: And yet I am of opinion it takes ſome things for granted which have not yet been ſufficiently prov'd. It ſuppoſes that a finite Capacity may warrantably judge of the conduct of infinite Wiſdom by its own Criterion, which poſſibly may be as improper, as 'tis impoſſible to meaſure the Heavens with a Span, to counterbalance the whole Creation with the ſhadow of Nothing: *God's thoughts are not as our thoughts, neither are his ways as our ways*; this is true in a natural as well as a moral ſenſe. Therefore when we meaſure him by our ſelves, is it not very poſſible for us to be miſtaken? When we make the ſhallow grounds we proceed upon, the adæquate meaſures whereby to judge of his proceedings, methinks this is to venture beyond our Sphere; what Reaſon will not warrant, as well as what in the Eye of Religion is the height of Preſumption. *Dangerous it were* (ſays judicious *Hooker*) *for the feeble Brain of Man to wade far into the doings of the moſt High; whom altho to know be life, and joy to make mention of his Name; yet*

DET. 7. *our ſoundeſt knowledge is to know that we know him not as he is, neither can know him; and our ſafeſt Eloquence concerning him, is our Silence; when we confeſs without confeſſion, that his Glory is inexplicable, his Greatneſs above our capacity and reach: He is above, and we on Earth; therefore it behoves our Words to be wary and few.* Apply this to his Actions as well as his Nature, and the Work of the fourth Day will ſoon be confeſs'd to be above what Exceptions we can make againſt it.

Beſides that, ſuppoſing the contrary conduct warrantable in the caſe before us, who knows what great reaſons God might have for ſuch conduct, as is imply'd in the moſt vulgar Expoſition? If the Laws of Nature took no place in the Hexaemeron, 'tis certain the fourth Day's Work might, in the time aſſign'd, be eaſily brought out of Nothing. And for God's bringing the reſt of the Creation into Being on one Day, and taking up five in preparing our Earth for us, for this there may not be wanting very great reaſons; reaſons, indeed, above our reach, and ſuch as God thought not fit to diſcover to us; which yet is no more an argument againſt his really having ſuch, than it is againſt the habitability of the Planets, that he has told us nothing of the matter.

And

And if he had reaſons for ſo ordering it, LET. 7
then all Objections vaniſh againſt the 4th Day's Work.

Nay, perhaps, 'tis not impoſſible to diſcover ſome plauſible reaſons for God's conduct in the caſe before us; I fancy I have 'lit upon one, and others who ſee better into matters, may, doubtleſs, upon due conſideration, diſcover many. 'Tis certain, Man in his primitive Perfection was a very noble Being; he was made in the image of God, which, whatever it conſiſted in, beyond controverſie, very highly dignify'd him; and 'tis only a bare conjecture to imagine any Equals, much more ſuperiors, in any other Planets throughout the whole Creation. Indeed, we can give no good reaſons for their being inhabited at all; our Moon, which gave the firſt occaſion to this fancy, is certainly not inhabited in Monſieur *Hugen*'s opinion: And if there are no Beings ſuperior to us in any other of the Planets, conſequently, without doubt, the whole viſible Creation was primarily intended by God for our ſervice: As magnificent as it is, to fancy thus of the whole viſible World, is no preſumption; if the Son of God died for us, what can we ſay was too great to be done for us by him who ſcrupl'd not to give us his only beloved?

Beſides

LET. 7. Beſides that, 'tis obſervable that the whole viſible Creation is apparently ſerviceable to us: In general, it is apt to raiſe in us ſuitable Ideas of God Almighty, to make us adore his Greatneſs, and fall down before the Footſtool of his Majeſty: And in particular, there is not one part of the whole World which we can ſay has not in ſome ſenſe or other its uſe. About the Earth nothing is queſtion'd, at leaſt, if any thing is, it is not becauſe it can do none, but that we are as yet ignorant of its ſervice; and in the Heavens every Star is uſeful at ſome time or other to the Sailor, and I think Navigation no inſignificant Science; what ſervice the Sun does us, we all know; and the Moon, our Satellite, is what we could not want without great diſadvantage; nay the Satellites of *Jupiter*, one would think as uſeleſs as any Bodies in the whole Firmament, have their conſiderable uſes too; one I have taken notice of already, as they diſcover to us the temporary propagation of Light, the enabling us to diſcover the Longitude upon occaſion, is another of greater conſequence.

V. Varenii Geograph. l. 3. p. 420.

And if all the viſible World was made for our ſervice, poſſibly God might have great reaſon for his conduct in the caſe before us. Might he not take up ſo much

time,

time in preparing our Habitation for us, LET. 7.
to ſhew what great care he took of us,
and how highly he valu'd us? And
might he not bring all the reſt of the
World in a far leſs time into Being, to
ſhew that it was not for want of power
that in the caſe of our Earth he was ſo
ſlow in his proceeding? His deſign was
to have us worſhip him; in order to
which we could have no greater motives
than the known regard he has for us, and
the benefits we receive from him; where-
as nothing can make us more ſenſible of
either than his conduct towards us in the
literal Expoſition of the Hiſtory of the
Creation: What Benefits we receive from
him we know when we ſee that everything
we enjoy was of his creation, and that
for our ſervice; the glorious Stars of Hea-
ven, as well as whatever is the product of
our Earth; and the regard he has for us
how could he expreſs in a more ſenſible
manner, than in taking more pains about
that part of the World which we were
immediately to inhabit, than about the
whole Creation beſides, which more re-
motely concern'd us.

This muſt vindicate with all conſider-
ing Men, God's conduct in the Work of
the 4th Day in the *moſt vulgar Expoſition*;
for if the ſervice of Man was the main
end

LET. 7. end of God's bringing into Being the whole viſible Creation, and if God created Man in order to worſhip him, then 'tis no way irrational to ſuppoſe that even in the Creation, of which he deſign'd us an Account, he ſo proceeded as to let us ſee what mighty motives we have to adore him; that he was very curious about our Earth, as it was to be the immediate Abode of us his beloved; but took leſs time in bringing all things elſe into Being, as what, tho' very ſerviceable, were not to be our immediate Habitation.

Give me leave to declare to you upon this occaſion, that in the uſe before, in my opinion, none whatever is of more ſervice to Religion, than the moſt vulgar Expoſition: As it takes it for granted, that the whole viſible Creation was made for our ſervice, what thing in the World, beſides the great Myſtery of our Redemption, can give us a more noble ſenſe of God's love for us? And accordingly, what elſe more likely to engage us to look upon it as our Happineſs, to make all poſſible ſuitable returns? Whereas this motive dwindles into nothing, upon ſuppoſition that we are not the thouſandth part of the end of the viſible Creation; that is, upon ſuppoſition that there are a

many

many thouſand various Species of Beings, LET. 7.
beſides our ſelves, poſted in divers places throughout the Univerſe, for whom, as much as for us, the World was created: and as the vulgar Expoſition gives us to underſtand what a peculiar care God took in the formation of our Earth, as we were to inhabit it, but brought all things elſe, which were not ſo nearly to concern us, more ſuddenly to perfection; this muſt inſpire us with the greateſt Ideas of the regard he has for us; and accordingly, if we are not wholly deſtitute of Reaſon, command from us the moſt awful reverence for him we are capable of expreſſing. 'Tis true, ſome Men have learn'd to look upon the former of theſe two Parriculars, as the greateſt abſurdity; they think it the maddeſt of all Fancies, to imagine that the whole viſible World ſhould be made for the ſervice of Mankind. I muſt confeſs, I think I have reaſon to diſſent from 'em in this Particular. The whole viſible World was as eaſily made by God as the leaſt part of it; and Man, 'tis certain, is of more value than ten thouſand times the whole viſible World; and if God thought him worth dying for, certainly to have made the whole viſible World for his ſervice, is no ſuch abſurd Suppoſition: He has done more for us in our

V. Whiſton on the Moſaic Creation, p. 89, 90, 91, &c.

LET. 7. our Redemption, than he could in giving us the command over the largeſt poſſible viſible Creation: And as the former great Work was wrought only for our ſervice, where's the abſurdity of ſuppoſing a far leſs Work wrought for our ſole ſervice alſo?

Poſſibly the Planets may be inhabited, and poſſibly they may not; poſſibly there may be many Species of Rational Beings poſted in the Planets, and poſſibly the contrary may be true. I don't think that whatever has yet been offer'd can infer as much as the probability of the former: We have no encouragement from the Moon to infer the habitability of the reſt of the Planets; and I think the inference from the conſideration of the extenſiveneſs of God's goodneſs, is not as ſtrongly concluſive as ſome imagine. God was neceſſarily infinitely Good before all Creation; and conſequently, as there can be no degrees in Infinity, he was as Good before all Creation as he is after it; and this, be the Creation of whatever extent. His Goodneſs therefore is the ſame whether he have made but a few or millions of Species of Beings; and conſequently from thence, if we have nothing elſe concurring, we can deduce neither the one nor the other.

I now,

I now come to remove the Exception alledg'd, as it may be made againſt the Expoſition I have advanc'd; and this is eaſily done; for ſuppoſing the object of this Day's Work to have been primarily created antecedently to the firſt Day, and from the firſt diviſion every Body of each Syſtem to have continu'd by degrees to work it ſelf into perfection; as by the third Day the Planets in every Syſtem came to perfection, ſo the fix'd Stars, being Bodies of a more refin'd and elaborate nature, were finiſh'd and illuminated their Planets by the fourth: On the firſt Day, they were tending towards a collection, being able to ſhew in the Centres of their Vortices ſome little of a dim light; on the ſecond, they grew better, ſo as to have ſome power upon their Planets in making 'em Atmoſpheres; on the third, they grew better ſtill, being conſiderably aſſiſtant in raiſing the Vegetable Kingdoms; and on the fourth, their Work was done, they broke into that ſplendor with which they now comfort the whole Creation. LET. 7.

Upon this Interpretation, there is nothing of aſſymetry in the whole proceſs of the Hiſtory: For, as Light appear'd on the firſt Day ſome time after the firſt diviſion of the Chaos; and as the Expanſum

LET. 7 panſum on the ſecond follow'd the ſubſidency of the groſſer parts of each Body to their reſpective Centres; and as the Vegetable Kingdom follow'd the draining of the Continent in ours, and, if they are inhabited, in the other Planets, on the third; ſo the perfection of the fix'd Stars very regularly follow'd on the 4th: By this time we may ſuppoſe the fix'd Stars came to perfection; and in that conſiſted the Work of this Day, the creation of the Stars. This may be ſo, and the Stars notwithſtanding be properly enough ſaid to be created on this Day; tho' they were Bodies or maſſes of Bodies from the beginning, yet they were not Stars till now; the formal exiſtence of Stars [illegible] ſiſting in this, that they be, what we now find 'em, luminous Bodies. The creation of Plants and Animals ſuppoſes pre-exiſtent Matter, which was at firſt brought into Being; notwithſtanding which, no body will deny but that the Vegetable Kingdom was created on the third Day, and the Sea and Land Animals on the fifth and ſixth. 'Tis Creation in a ſecondary ſenſe, which is not only to be ſuppos'd here, but alſo every where throughout the proceſs of the Hiſtory; the creation of the Chaos, and that of the Soul of Man, imply of neceſſity immediate production,

duction out of nothing; nothing elſe in the Hiſtory before us does ſo; and yet many things beſides were upon this occaſion in a ſecondary ſenſe created. LET. 7.

I think thus much may account for that part of the Work which the *Moſaic* Hiſtory aſſigns to the fourth Day, and take off its fancy'd monſtrous Aſſymetry with the Body of the Hiſtory; and I think at the ſame time, that this Interpretation removes all the neceſſity of excluding the fix'd Stars out of the *Moſaic* Creation. 'Tis true, this has been done by ſome in order to make *Moſes* go down better with the *Deiſts*; I believe without any neceſſity; or if he can't be believ'd as I have interpreted him, neither will he in a more limited ſenſe: The ſame time that brought our Syſtem to perfection, might do the ſame by all the Syſtems in the whole World; and the Work of the fourth Day being only the perfecting of what was working towards perfection from the beginning, the Objection from Aſſymetry vaniſhes as well in the whole Creation as in one ſingle Syſtem. As to the Objection from the late date of the *Moſaic* Creation, which upon the new ſuppoſition is remov'd, as I have already obſerv'd, 'tis not worth taking notice of. All the World, forſooth, but our Syſtem,

LET. 7. muſt be imagin'd in Being infinite Ages before the commencement of the *Moſaic* Creation, elſe the *Deiſt* can't conceive what God had been doing in the antecedent Eternity. Alas! be the World as old as it will, ſtill an Eternity muſt be antecedent to it; it is nigh Six thouſand Years old, and an Eternity was before it; and were it Sixty thouſand, nay Sixty thouſand times ſixty thouſand, the very ſame Eternity would have been before it ſtill; the longeſt time can't be call'd the leaſt part of Eternity; indeed they differ in nature *toto genere*; one million of Years come no nigher Eternity, than one Moment. If this expreſſion ſeem harſh, it may be conſider'd, that if it come near it, it muſt be by being a greater part of it, but a part of it it is not: What is made up of parts which are finite, muſt of neceſſity it ſelf be finite too.

I will grant, with the chief Aſſertor of this Opinion, that we cannot infer the creation of the reſt of the Syſtems in the World at this time from theſe Words, *He made the Stars alſo*; by reaſon of the interpolation of the words *he made*; and that theſe words, *the Stars*, ought to be join'd to the preceding part of the Verſe, I will freely allow; and I am ſatisfy'd with the conſtruction he has ingeniouſly fix'd upon them.

V. Nicholl's Conference with a Theiſt.

'em. But then, beſides that, if they are not mention'd to be made here, we hear nothing of 'em in the whole Hiſtory; in my opinion the firſt part of the Hiſtory of this Day's Work ſpoils the credit of this new fancy. The ſacred Author tells us in general terms, in the 14th and 15th Verſes, that God made [redacted] Lights, and he gives us the end of their creation too in general; this certainly implys the creation at this time of the Stars, at leaſt, in the ſenſe I have given of Creation; and afterwards he proceeds to take more particular notice of thoſe which in a greater meaſure concern us, and ſpeaks of the two [redacted] Lights, as they appear to us, in a [redacted] eſpecial manner, the Sun and the [redacted]on. I ſhall add no more upon this head, for this time begging leave to ſubſcribe my ſelf, LET. 7.

SIR,

Your moſt obedient, humble Servant,

A. B.

LETTER VIII.

SIR!

I Have now run through the moſt formidable difficulties in the *Moſaic* Hiſtory; and I think I have pretty well reconcil'd it with Reaſon and Philoſophy, ſuppoſing ſecond Cauſes to have had a hand in the Hexaemeron. Againſt the fifth and ſixth Days Works there are no Exceptions conſiderable; however, in this and my next I will run 'em over; and what I ſhall find in 'em moſt liable to Exception, I will endeavour to account [illegible]. The Work of the fifth Day was the Production of Fiſh and Fowl. *And God ſaid,* Gen. i. 20, 21, 22, 23. *let the Waters bring forth abundantly the moving Creature that hath life, and Fowl that may fly above the Earth in the open Firmament of Heaven; and God created great Whales, and every living Creature that moveth, which the Waters brought forth abundantly after their kind, and every winged Fowl after his kind; and God ſaw that it was good: And God bleſſed 'em, ſaying, be fruitful and multiply, and fill the Waters in the Seas; and let Fowl multiply in the Earth: And the Evening and the Morning were the fifth Day.*

'Tis certain we can't attribute the whole of this or the next Day's Work to the ſole power or operation of ſecond Cauſes, neither can we indeed the later part of the third. The formation of the Seeds of all Animals and Vegetables, was, in the opinion of thoſe who attribute many other things in the Hiſtory to the direction of ſecond Cauſes, the immediate Workmanſhip of God. In what degree of perfection God created 'em we know not, only we may imagine in a very conſiderable one, conſidering what a little time they took afterwards to be brought by the influence of ſecond Cauſes to their full growth. Upon this ſuppoſition, the formation of Fiſh and Fowl on this Day is accounted for; God created 'em in ſuch a condition as to enable ſecond Cauſes to bring 'em in a Day to perfection; and after the ſame manner may we account for the formation of Brute Animals; nay, and for the Vegetables too, which we may ſuppoſe created by God in ſuch a condition as to be well able to come to their full perfection by the creation of *Adam*. LET. 8.

V. Whiſton's Theory, p. 224.

Againſt this Explication there are, I am pretty confident, no material Exceptions. If it be ſaid, that I ought here, as well as in the other Days Works, to

LET. 8. proceed upon the ſuppoſition of the ſole operations of ſecond Cauſes. I anſwer, That I have proceeded upon ſuch a ſuppoſition as long as it was warrantable: In this caſe 'tis nonſenſe in terms, as it is impoſſible for the Animals or Vegetables to have come without God's immediate operation in their production into Being. 'Tis true, there are not wanting Men in the World who deny that this is impoſſible; neither are there wanting ſuch as contend not only for the poſſibility, but for the actual reality of it: Men who believe equivocal Generation; who fancy that the Vegetables were rais'd ſpontaneouſly out of their Mother Earth; that all manner of Inſects came into the World the very ſame way; nay, that Fiſh and Fowl and Brute-Animals, and Man too, were produc'd out of the firſt fruitful ἰλὺς, like morning Muſhrooms. 'Millions 'of Inſects (ſay they) in the heat of Sum-'mer are at preſent generated after this 'manner; nay ſome conſiderable Animals, 'being found in ſuch places where they 'could not poſſibly come if produc'd elſe-'where by the method of univocal Gene-'ration: And if fainting Nature can do 'theſe things now, why not greater at 'firſt? If Mother Earth upon her Death-'bed can produce leſs, why might ſhe

'not

'not in the flower of her Youth, 'when ſhe LET. 8.
'was vigorous and luxuriant, bring forth
'larger Animals?

In order therefore to vindicate my conduct in this caſe, my ſuppoſing it abſolutely neceſſary to have recourſe to God Almighty in the firſt formation of the Animal and Vegetable Kingdoms; and therein to juſtifie the Explication I have given of this, the later part of the third, and the former of the ſixth Days Work, I will endeavour to ſhew the extravagancy of this Notion, which they maintain, of equivocal Generation: *That tho' we ſhould grant it now in ſome of the leſs ſignificant Animals and Vegetables, we can't therefore conclude that at the firſt it took place in the larger Plants and Animals: Nay, That we have no reaſon to grant it in the leaſt Inſect or Vegetable in all Nature, inaſmuch as whatever from experience is brought in its favour, is found to be precarious, and that all the fancy'd inſtances of ſpontaneous Generation are accountable for in a more rational manner; and that as it is not founded in experience, ſo it is altogether abſurd, and incomprehenſible in the eye of Reaſon.* Theſe things clearly done, I think may ſerve utterly to ſubvert this precarious Notion; if Reaſon won't ſuffer us to be-

LET. 8. lieve it, I think 'tis the ſame as to have Reaſon to diſcard it.

Now, let us grant that ſpontaneous Generation takes place in ſome ſmall particulars now, and does it therefore follow, that at firſt it certainly did ſo in all others? Becauſe a minute Vegetable or Inſect may be thus generated at preſent, have we reaſon to expect the primary production of the whole Animal and Vegetable Kingdoms after the ſame way? Are theſe concluſions warrantable? Indeed, I ſee nothing of conſequence in the caſe; rather the contrary; That inaſmuch as only inconſiderable things are ſpontaneouſly generated now, there we have reaſon to exclude all others from coming into Being at any time whatever after the ſame manner. The only reaſon the *Atheiſts* bring for their making the inference from the leaſt Vegetables to the greateſt, and from Inſects to larger Animals, is, the wide difference they fancy 'twixt the Earth now, and its ſelf in its primitive condition. They ſay, That if it can produce ſmall things now, when almoſt ſpent, what might it not do in its full ſtrength and vigor? But this great deduction, I believe, they build upon a very ſandy foundation. Poſſibly it may be demonſtrated, that the Earth is not ſo

ſo much in its dotage as *Epicurus* imagines, but that it continues much what the ſame in this particular it was from the beginning. LET. 8.

'Tis true, that this Globe does daily *ruere in pejus*, has been the opinion of very learned Men; but then this opinion is far from being defenſible, ſo as one would wonder how it came to be ſo unqueſtionably and univerſally entertain'd. Indeed, 'tis demonſtrable that the Earth is much what the ſame now as to bigneſs, tho' not numerouſneſs of Productions, it was before the Flood; witneſs thoſe vaſt quantities of the *Exuviæ* of Sea and Land Animals, *&c.* which remain in Being as natural evidences of that fatal Deſtruction. Theſe ſame Relicks of the Deluge ſhew well nigh as much vigor in the Earth now as it had in its antediluvian condition; the Shells, *&c.* which are brought into Being now, are equal in all reſpects but Age with the antediluvians, which could never be, were the Earth ſo deficient in its priſtine vigor now as ſome are pleas'd to imagine. It then produc'd more, but thoſe no way greater than we now meet with; the Vegetables are of the ſame ſize, and ſo are the *Exuviæ* which remain of the antediluvian Animals with thoſe of their reſpective Species now

v. Woodward's Nat. Hiſt. p. 21, &c.

LET. 8. now to be found. This muſt ſatisfie us, that there is no ſuch diſparity 'twixt the primitive and preſent Earth, as whereon to found what the *Atheiſts* contend for: It was more numerous in its productions then, and this is all the decay we can find in it; but what it produc'd was exactly of the ſame magnitude, *&c.* with what we find at preſent: Now, how from its being ſomething more numerous in its productions of ſuch things as now it produces in a leſs plentiful manner, we can infer its capacity of then ſpontaneouſly producing all Plants and Animals, tho' it now can only ſo bring forth Inſects and the minuteſt Vegetables, is above my comprehenſion; I ſee no conſequence in the caſe; let it be all over-run with a Garden of *Eden*, and yet I don't ſee that we are any nigher a reaſon why it ſhould be capable of raiſing ſpontaneouſly the Vegetable and Animal World.

V. Woodward's Nat. Hiſt. *p.* 53. *&c.*

This fancy of the ſo great decay of the Earth's primary vigor, is much what of the ſame ſtamp with that of ſo many and ſuch great alterations, with reſpect to ſhifting of places 'twixt Sea and Land upon the face of the Globe; and they have both had large footing, and held their ground for many Ages in the World; and they are both, I believe, equally defenſible that

that is, not defenſible at all. If we look LET. 8.
over the face of the Earth now, we ſhall find it as nigh as poſſible to it ſelf in the earlieſt Hiſtories; and the remains of the Deluge ſhew that the Animal World antecedent to its commencement, and the Vegetable too, was ſupported by a power in the Earth much what the ſame with that we now find in Being: The primitive Earth was in its power of production, only that it produc'd more, as like the preſent, as the Shells, Bones, and Vegetables which ſurviv'd the Deluge, are like thoſe of the ſame Nature and Species now; that is, as like as poſſible; and therefore the inference from a Mite in the Earth's old Age to a Man in its full ſtrength, is utterly invalid: Tho' things are not now produc'd in ſo great number, yet thoſe which are produc'd come after the ſame manner. If the Earth was therefore capable of producing many larger Animals at firſt, ought we not to expect ſome, tho' fewer, now? Such ſights till we ſee, we muſt conclude, that granting equivocal Generation in the minuteſt Plants and Animals, it is, and always was, in all others an impoſſible thing.

But I know no reaſon we have to grant ſpontaneous Generation in the leaſt Inſects and Vegetables; whatever is brought in

LET. 8. in favour of this fancy from experience, is precarious; and all the fancy'd inſtances of ſpontaneous Generation, are accountable for in a more rational manner. We hear, indeed, of Muſtard which ſprung up in the Iſle of *Ely*, where none was known to have been ſown in the memory of Man: But might not the Seed have laid there dormant more than a Man's Age? 'Tis the opinion of many that ſome Seeds will for a prodigious long time retain their Fecundity; at leaſt, might it not have been carry'd down the River, or in Floods, and being thrown upon the Banks, there upon their being new dig'd up, put forth and germinate? We hear of ſhowers of Frogs too; but this is a Story which it is impoſſible to give credit to, till we can conceive how they could be generated in the Clouds; how they could find Food there, as was diſcover'd by Monſieur *Perault* in ſome which were fancy'd newly fallen; and how they could fall from ſuch a height without any damage. Certainly the Clouds are not in a Region very ſubſervient to Generation; neither are they furniſh'd, unleſs Snow is ſuch, with any Animal Nutriment; neither is it poſſible to imagine that ſhowers of Frogs can come from the Clouds, without moſt of 'em catching ſome harm, ſuppoſe

V. Ray's Wiſdom, &c. p. 344. &c. uſq; ad p. 376.

poſe a broken a Leg, by the fall. As for LET. 8.
thoſe Toads which are ſometimes found
in the midſt of ſolid Trees, or Stones, *they when young and little*, I ſpeak the ſenſe of Mr. *Ray*, *finding in the Trees, or Stones, ſome ſmall holes reaching into the middle of 'em, may have crept into 'em as latibula for Winter; and growing there too big to return by the paſſage they enter'd at, were forc'd to ſtay, and might continue there for many Years.* The ſpontaneous Generation of Plants is confuted by the Experiments of *Malpighius*, who found that Earth digged out of a deep place, put into a glaſs Veſſel, cover'd with Silk many times doubled, and ſtrain'd over it, which would admit the Water and Air to paſs through, but excluded the leaſt Seed that might be wafted by the Wind, had no ſuch thing as a Plant ſprang up in it: Neither have we any reaſon to recur to equivocal Generation in the production of any the moſt minute Inſect in the World. The vulgar Error, That many are ſo generated in putrify'd Fleſh, is confuted by the accurate Obſervations of *Franciſco Redi*, and ſome of our own Virtuoſos, who prove them the reſult of Eggs there depoſited by Inſects of their own Species; and thoſe which we find in little Protuberances in the Leaves and Branches of Trees,

How they may live there, ſee Mr. *Ray*.

LET. 8. Trees, are well accounted for by *Malpighius*, who proves that theſe Protuberances are the reſult of Eggs there depoſited, which being ſurrounded with a ſtrong venenoſe Liquor, cauſe the tender parts of the Plant, or Leaf, to ſwell, ſo as to form a little Womb, in which the Eggs are hatch'd, and the Young ſupported, till they are able to break forth, fly abroad, and provide for themſelves. Thoſe Animals which are found in the Bodies of others, are they not conveyed into 'em *in ovo* in their Nutriment? And thoſe which are found in the exterior parts of other Animals, is not their caſe the ſame with that of thoſe which are bred in the Protuberances of Vegetables? And leſt there ſhould be thought equivocal Generation in the production of Flies from Maggots, let us hear *Swammerdam*, who proves that all the parts of thoſe Inſects which appear in one form, and afterwards aſſume another, are actually exiſtent in the Fætus, which creeps about as a Caterpillar or a Maggot; till the Wings, Horns and Feet which are enclos'd in fine Membranes, come to their full growth; and then the Inſects break out, fly abroad, feed upon the viands which Nature has prepar'd for 'em, and propagate their Species. In a word, whatever

whatever was once thought the reſult of ſpontaneous, is now found by experience the effect of univocal Generation. Upon any other terms it is ſufficiently diſcover'd that we have no reaſon to believe any Animal or Vegetable can come into Being. And this may ſatisfie us, that experience is very far from countenancing the Doctrine of equivocal or ſpontaneous Generation. LET. 8.

And as we have no countenance for equivocal Generation from experience; ſo reaſon bids directly againſt the very poſſibility of any ſuch thing. Let us conceive a Planet unfurniſh'd with Vegetative and Animal Principles, plac'd at a due diſtance from the Sun, and moving about it and upon its own Axis in a moſt advantageous Poſition; as it is unprovided with the Principles requir'd, tho' it move about the Sun to eternity, 'twill certainly continue naked; at leaſt, ſtock'd with no ſuch things as Plants or Animals. As far as Mechaniſm will permit, we may ſafely venture to ſay, it will have an Atmoſphere, and conſequently, according to the various Seaſons of its Year, Rain, or Hail, or Snow, together with aerial, and fiery, and flatuous Meteors; if it is furniſh'd with Seas and Mountains, it will have Rivers, and divers other Phœnomena

LET. 8. nomena will occur; all that we meet with in our Earth, if it is of the ſame figure and magnitude, in the ſame Poſition, and at the ſame diſtance from the Sun, ſave what are the reſult of the Animal and Vegetable Kingdoms: But then we can no more grant that without Principles it can produce Animals or Vegetables, than that it can [illegible] any thing in Art, as Houſes, or Caſtles: We allow it an Atmoſphere, becauſe it is conſonant to the Laws of Mechaniſm to put the ſuperficial Fluids of the Planet into motion, and to carry in their reflexion ſuch light Fluids along with 'em to a conſiderable diſtance, as uniting together in colder Regions, will form what we call Clouds; and we are able to account for its having divers Meteors, as Wind, and Rain, and Thunder, and Lightning, after the ſame manner: But then tho' we can allow it theſe things, yet we can by no means permit it to be furniſh'd without Seminal Principles with Plants and Animals; all the powers of Nature won't effect it: Indeed, there are ſuch things requir'd in the effecting of it, as run in a thouſand inſtances directly counter to the Laws of Nature.

Let

Let us hear the excellent Mr. *Ray* upon this occaſion: *I am difficult to believe,* ſays he, *that the Bodies of Animals* (and I am perſuaded that the difficulty is the ſame in Plants) *can be form'd by Matter divided, or mov'd by what Laws you will or can imagine, without the immediate preſidency, direction, and regulation of ſome intelligent Being. In the Generation or firſt formation of, ſuppoſe the human Body, out of, tho' not an homogenious Liquor, yet a fluid Substance, the only material Agent, or Mover, is a moderate Heat: Now, how this, by producing an inteſtine motion in the Particles of the Matter, which can be conceiv'd to differ in nothing elſe but figure, magnitude, and gravity, ſhould by virtue thereof not only ſeparate the heterogeneous Parts, but aſſemble the homogeneous into Maſſes or Syſtems; and that not each kind into one Maſs, but into many and disjoin'd ones, as it were ſo many troops; and that in each troop the particular Particles ſhould take their places, and caſt themſelves into ſuch a figure; as for example, the Bones being about 300, are form'd of various ſizes and ſhapes, ſo ſituate and connected as to be ſubſervient to many hundreds of intentions and uſes, and many of 'em conſpire to one and the ſame action, and all this contrarily to the Laws of Specific Gravity, in whatever*

LET. 8.

V. Ray's Wiſdom, &c. pag. 59, 60.

LET. 8. *poſture the Body be form'd; for the Bones, whoſe component parts are heavier, will be above ſome parts of the Fleſh which are lighter; how much then, ſeeing it is form'd with the Head, which for its bigneſs is the heavieſt of all the Parts uppermoſt?* This, he ſays, he can't by any means conceive; and he proceeds, in what follows, to aggravate the difficulty of Conception: And indeed, I think ſuch things as theſe can be conceiv'd by none in their right Senſes; in the formation of a Man in a thouſand inſtances, the Laws of Mechaniſm are contradicted; and proportionably to the admirable curioſity of their Structure, in the leaſt Animal or Vegetable in Nature.

And if Animals and Vegetables can't be produc'd in perfection by meer Mechaniſm, neither can they or ever could they in their Seminal Principles. Indeed, in my opinion, in the Seminal Principle they are infinitely more difficult to form; for every Seminal Principle contains its reſpective Plant or Animal in full perfection as to figure and parts in miniature. This notion, tho' not of very long ſtanding, is now univerſally receiv'd. As it is therefore more difficult to make a piece of Mechaniſm in little, than in a large ſize; as a Watch of the bigneſs of an

Acorn

Acorn would be an infinitely more curi- LET. 8.
ous and intricate piece of Workmanſhip
than one with no more Movements of
the uſual bulk; is not the Seminal Prin-
ciple of an Animal or Vegetable for the
ſame reaſon of infinitely more difficult
formation than themſelves in perfection?
The Seminal Principle contains every *Semen*
thing that is admirable in the Animal or
Vegetable, it therefore exceeds it infinite-
ly in difficulty of formation; and if the
production of perfect Animals and Vege-
tables is out of the power of ſimple Me-
chaniſm, much more is that of their Se-
minal Principle; if no ſuch things can
be produc'd by Nature ſpontaneouſly in
their full bigneſs, we have infinitely leſs
reaſon to expect 'em in that admirable mi-
nuteneſs in which they are found in all
reſpects intire in their reſpective Seeds.

And if ſecond Cauſes could not begin
the formation either in Semine, or other-
wiſe, of Plants and Animals; then it muſt
be allow'd that God had a hand in 'em;
that he either form'd 'em in miniature,
or in a maturer ſtate, and left ſecond
Cauſes to bring them to perfection. This
is what I contend for in explaining this,
the latter part of the third, and the former
of the ſixth Days Works; and this we ſee
muſt of neceſſity be ſuppos'd: Where ſe-

LET. 8. cond Cauſes might take effect; we allow of 'em; but where they poſſibly could not, what are we guilty of in ſuch a conceſſion? Indeed, in what condition God gave up Plants and Animals to Nature, we know not; whether *in Semine*, or in a ſtate nigher to perfection. They may ſuppoſe the later who think that otherwiſe they could not poſſibly in the time aſſigned be perfected; and they who believe that they might be brought to perfection even from the Embryo before the formation of *Adam*, may ſuppoſe that God Almighty firſt made Plants and Animals in their Seminal Principles. I have no more to add at preſent, only that I deſire for ever to continue,

SIR,

Your obedient, humble Servant,

A. B.

LETTER

LETTER IX.

SIR!

THE Work of the 6th and laſt Day was the formation of Brute-Animals, and the creation of Man: *And God ſaid, let the Earth bring forth the living Creature after his kind; Cattel and creeping thing, and Beaſt of the Earth after his kind; and it was ſo: And God made the Beaſt of the Earth after his kind, and Cattel after their kind, and every thing that creepeth upon the Earth after his kind; and God ſaw that it was good. And God ſaid, let us make Man in our image, after our likeneſs; and let them have dominion over the Fiſh of the Sea, and over the Fowl of the Air, and over the Cattel, and over all the Earth, and over every creeping thing that creepeth upon the Earth. So God created Man in his own image, in the image of God created he him, Male and Female created he them: And God bleſſed 'em, and God ſaid unto 'em, be fruitful, and multiply, and repleniſh the Earth, and ſubdue it; and have dominion over the Fiſh of the Sea, and over the Fowl of the Air, and over every living thing that moveth upon the Earth: And God ſaid, behold I have given you every Herb bearing* Gen. i. 24. &c. ad finem.

LET. 9. *Seed which is upon the face of the all Earth; and every Tree in which the Fruit of a Tree yielding Seed, to you it ſhall be for Meat; and to every Beaſt of the Earth, and to every Fowl of the Air, and to every thing that creepeth upon the Earth wherein there is life, I have given every green Herb for Meat; and it was ſo. And God ſaw every thing that he had made; and behold it was very good. And the Evening and the Morning were the ſixth Day.*

Interpreters are not all fully agreed concerning the object of this Day's Work. I ſhall not ſtand to reckon up the moſt conſiderable Opinions about it; I believe the utmoſt of what ought to be aſcrib'd to it, is the formation of Brute-Animals, the creation of *Adam* and *Eve*, the preparation of *Paradiſe*, *Adam*'s naming the Creatures about him, or rather I ſhould have ſaid *Adam*'s naming the Creatures, and then the formation of *Eve*; for this ſucceeded the other, as is evident from the 20th and following Verſes of the 2d Chapter. As to the making the Fall to have happen'd on this Day, 'tis a wild fancy, built upon no grounds, and contradicted by ſeveral very conſiderable Reaſons: So that I look upon what was the object of this Day's Work to be accounted for ſuccinctly in this firſt, and in what

Moſes

Moſes thought it more material to enlarge upon, to be proſecuted more fully by re-aſſumption in the following Chapter; in both which places I meet with no very material difficulties; eſpecially in the former, which, as concluding the general account of the *Moſaic* Creation, I look upon my ſelf in ſtrictneſs as only oblig'd to account for. The formation of Brute-Animals, what I have advanc'd in my laſt, gives a ſufficient account of; and the creation of *Adam* and *Eve*, being wholly the Work of God, needs no account to be given of it. There is nothing to be ſaid againſt the preparation of the Garden; or if there are any exceptions made againſt any of theſe things, I need not ſtand to confute 'em, they are fully anſwer'd already by Dr. *Nichols*. LET. 9.

V. Nichols's Conf. part 1. from p. 127 to 178.

The only thing which I think worthy of taking notice of here, is, how *Adam* could be ſuppos'd capable of giving Names to the Brute-Animals ſo very ſoon, and in that ſmall time which the other Works of this Day will allow him. That he nam'd 'em on this Day, 'tis certain, as ſure as *Eve* was created on the ſame; for it was after he had nam'd 'em, and found amongſt 'em no Meet-help for himſelf, that we hear of *Eve*'s creation; whereas that ſhe was created on this Day, we

Gen. ii. 19, 20, *&c.*

LET. 9. are aſſur'd from the 27th and 28th Verſes of this firſt Chapter: And if *Adam* nam'd the Brute-Animals in a part of the ſixth Day, the Queſtion is, how he came by Language? And then, how he could get time in a ſmall pittance of a Day to give Names to all the Animals about him? To which I anſwer, That his Language God gave him; and for naming the whole Brute-Creation about him, I don't ſee that he requir'd much time. If he gave 'em Names conſonant to their Natures, we may be ſure he underſtood their Natures to an exact degree, having an inſight into 'em immediately from God Almighty: And being no way retarded in naming 'em upon this account, doubtleſs he might give Names to ſeveral thouſands in no very long time. 'Tis true, Dr. *Nichols* is not of opinion that the firſt gift of Language was miraculous, but that *Adam* and *Eve* fram'd it for themſelves; whereas, beſides that this Hypotheſis makes it impoſſible that *Adam* ſhould give Names on the ſixth Day to the Brute-Animals, which he as certainly did as *Eve* was then created, meet we not with *Adam* Maſter of a Language before *Eve* was made? *Gen.* ii. 20. This I wonder the Doctor took no notice of. And inaſmuch as he had it before he had any to help

help him to make it, I conclude, be the Miracles in the caſe as many as they will, that the firſt Language was not made by Man, but was the immediate gift of God. LET. 9.

And now I have done with the 3d general reaſon why I ſtill adhere in the Hiſtory before us to the vulgar Expoſition, *That ſuppoſing the Laws of Nature to have took place upon this occaſion, ſtill there is nothing in it as vulgarly expounded which contradicts the beſt Philoſophy.* 'Tis true, in this caſe I don't take *Vulgar* in as ſtrict a ſenſe as in the former; but I come as nigh it as that *Moſes* may be taken in my ſenſe, and not be diſcredited, as I might eaſily make it appear, did I contend for this Expoſition in oppoſition to the other. But this I do not contend for, the *moſt Vulgar* I am confident may be defended; let thoſe therefore who won't admit of ſecond Cauſes in the formation of the World, adhere to it; they may make uſe of this other who will fancy that the *Moſaic* Hiſtory is accountable to Philoſophy. I have now done, only I ſhall ſubjoin a Paraphraſe of this Hiſtory on both theſe Hypotheſes.

Paraphraſe

Paraphraſe on the moſt vulgar Expoſition.

Geneſis the 1ſt.

Paraphraſe on the Philoſophic Explication.

1. In the beginning of Time, God made out of nothing the whole viſible Creation.

1. *In the beginning God created the Heaven and the Earth.*

1,2. At the firſt commencement of Time, God made out of nothing the Materials of the whole viſible world.

2. That part of it which he firſt ſet about was our Earth; which in the ſtate he firſt made it in, was a confus'd and indigeſted heap; to be brought to perfection by the incubation of the Spirit of God.

2. *And the Earth was without form, and void; and Darkneſs was upon the face of the Deep; and the Spirit of God moved upon the face of the Waters.*

Theſe Materials were in their firſt creation in a very confus'd condition, a perfect Chaos of Solids and Fluids jumbled together in a moſt irregular manner. Their firſt tendency towards perfection, was the reſult of Motion, which being impreſs'd upon the Chaos by the Spirit of God, immediately ſhatter'd it into ſuch pieces as God deſign'd: To ſeveral conſiderable Quantities of which he fix'd Centers of Gravity, and impreſſing that Property upon thoſe Quantities, enabled 'em in ſome time to unite into regular Bodies.

'How long it was after this diviſion before Light broke forth, *Moſes* does not tell us; indeed it was beſides his deſign ſo to do; for 'after he had told us by way of Preface, that all things were made by 'God, we may ſee it was his aim to give us an account of the proceſs 'of their formation after they became viſible, which they did not till 'Light appear'd; and therefore whatever time in the interim interfer'd, he was not oblig'd to take any notice of it.

3. In order to which, he firſt commanded Light into Being, and it appear'd.

3. *And God ſaid, let there be Light; and there was Light.*

4. Which Light God approv'd of, as what would be very ſerviceable to the ends he deſign'd it for; and he

4. *And God ſaw the Light that it was good; and God divided the Light from the Darkneſs.*

3, 4, 5. The firſt remarkable Phænomenon which follow'd this originary diviſion and diſpoſition of the Chaos was Light; which after all the Syſtems of groſſer Matter, were tolerably ſub-

ded

poſted it at ſuch a due diſtance from the Earth as where it might be moſt aſſiſting in the formation of it.

5. And this Light, and the preceding Darkneſs, he diſtinguiſh'd reſpectively by the names of Day and Night; which from this time commenc'd; the preceding Darkneſs and the firſt appearance of Light being the firſt Night and Day.

5. *And God call'd the Light Day, and the Darkneſs he call'd Night. And the Evening and the Morning were the firſt Day.*

ſided to their reſpective Centers, began in a ſmall meaſure to ſhew itſelf in ſuch places where it was more copiouſly collected; that is, in the Center of ours, and all the other Syſtems, in the others not to us, but in ours to us, tho' but after a faint manner. Upon its appearance, as it found the Planets pretty conſiſtent, it met with 'em, alſo begun to revolve upon their own Axes; from whence commenc'd the firſt ſucceſſive Light and Darkneſs on our Earth; that is, hence we muſt date the firſt beginning of our Day and Night.

6, 7. And God order'd an Expanſum to be ſtretch'd over the face of the Earth, by dividing the Waters on the Earth from thoſe in the *Clouds; and therein leaving a wide and open ſpace, call'd the Firmament, between them.

Which Firmament he alſo call'd Heaven: And this Work was done by the time that the lately created Light had made a revolution about the Earth; or by the end of the ſecond Day.

6. *And God ſaid, let there be a Firmament in the midſt of the Waters, and let it divide the Waters from the Waters.*

7. *And God made the Firmament, and divided the Waters which were under the Firmament from the Waters which were above the Firmament; and it was ſo.*

8. *And God call'd the Firmament Heaven: And the Evening and the Morning were the ſecond Day.*

6, 7, 8. And as at the firſt appearance of Light our Earth and the other Planets were conſiderably ſubſided, ſo they proceeded in their ſubſidency till they came to be complete Bodies. On the beginning of the ſecond Day, all their groſſer and lighter Solids were ſubſided; and their Fluids ſubſided then; that is, thoſe which remain'd after what the Solids before carry'd in; and upon their ſubſiding, appear'd a free and open Expanſum. 'Tis true, as they ſubſided, ſo the inteſtine Heat of

of the Earth, aſſiſted by the growing influence of the Sun, threw a conſiderable quantity of 'em back again, which at ſome diſtance from the Earth form'd Clouds or Waters above the Firmament. Theſe Waters above the Firmament, were by the intermediate Expanſum now divided from thoſe below it: And thus far was our Earth, and ſo the other Planets, got towards perfection upon the concluſion of its ſecond diurnal Revolution.

'During this and the former Day, and the time 'twixt the appea-'rance of Light and the impreſſion of Motion, we muſt conceive that 'the Channels of the Seas were in ſome meaſure in a ſtate of forma-'tion, and from their very firſt formation they were in filling. The 'Solids of our Globe, and *à pari* of the reſt, were ſo directed in their 'primary Motion as to form 'em; and as they found part, and carry'd 'vaſt quantities of Waters in their ſubſiding along with 'em, they had 'no ſooner made the Channels, but they were pretty well ſtock'd 'with Seas; ſo as to leave by much the leaſt part to fall upon, and be 'drain'd from off the Surface of the Earth.

9. And after the creation of the Firmament God order'd the Waters to be collected into one place upon the Surface of the Earth; and they obey'd his Voice.

9. *And God ſaid, let the Waters under the Heaven be gathered together into one place; and let the dry Land appear; and it was ſo.*

10. Which being done, he call'd the Land they left dry, Earth; but the collection of the Waters he diſtinguiſh'd by the name of Seas; and he approv'd of this diviſion as what in a ſhort time would be very ſerviceable. Some refer this to the former Day's work; but 'tis a force upon the Letter of the latter part of the 8th Verſe.

10. *And God call'd the dry Land Earth; and the gathering together of the Waters called he Seas: And God ſaw that it was good.*

11, 12. And after the Earth was drain'd, he order'd the produ-

11. *And God ſaid, let the Earth bring forth Graſs; the Herb yield-*

9, 10, 11, 12, 13. Thoſe Waters which the formation of the Expanſum on the ſecond Day left upon the Surface of the Earth, began at that time to make into the Channels of the Seas, and continu'd ſo to do till part being thrown off in Vapour, and the reſt by ſome means or other being alſo taken off, about the middle of the third Day the Surface of the Earth was pretty well clear'd. From thence commenc'd the appearance of the Vegetable Kingdom; their Seeds being made by God, as they could not by all the powers of Mechaniſm be produc'd, in ſuch a condition as by the

ction of the whole Vegetable Kingdom; each reſpective Plant with its Seed within it ſelf in order to be able to propagate its Species; which accordingly was effected to his good liking, as it would be for the Suſtenance of the ſeveral ſorts of Animals with which he was ſhortly to ſtock the Earth.

13. And this Work was done by the time that the firſt Light had made another Revolution.

14, 15. And when he had got the Earth thus forward, he commanded, beſides the firſt Light, innumerable more glorious ones into Being, in order to give a greater Light upon, and to be of ſeveral other conſiderable uſes to our Earth; to make the diſtinction 'twixt Day and Night more conſpicuous; and to meaſure out and declare by their Motions the ſeveral particular Seaſons of, and the whole Year.

16. Theſe Lights were in particular the Sun, and the Moon, to us greater; the former to govern the Day; and the latter,

ing Seed, and the Fruit-tree yielding Fruit after his kind, whoſe Seed is in it ſelf upon the Earth; and it was ſo.

12. *And the Earth brought forth Graſs and Herb yielding Seed after his kind, and the Tree yielding Fruit whoſe Seed is in it ſelf after his kind; and God ſaw that it was good.*

13. *And the Evening and the Morning were the third Day.*

14. *And God ſaid, let there be Lights in the Firmament of Heaven, to divide the Day from the Night; and let them be for Signs and for Seaſons, and for Days and for Years.*

15. *And let them be for Lights in the Firmament of Heaven to give light upon the Earth; and it was ſo.*

16. *And God made two great Lights; the greater Light to rule the Day, and the leſſer Light to rule the Night: He made the Stars alſo.*

the prodigious inteſtin Heat and Fecundity of the ſuperficial ἰλύς, together with the growing power of the Sun, to be enabled to riſe conſiderably on a ſudden, ſo as to be brought by the creation of *Adam* to their full perfection.

14, 15, 16, 17, 18, 19. Thus have you heard of the finiſhing of our Globe, which came to its full perfection upon the concluſion of its third Revolution; the reſt of the Planets at the ſame time had made the ſame progreſs: And as all the Planets were finiſh'd on the third, ſo the fix'd Stars came to perfection on the 4th; our Sun which rules the Day, and *à pari* the reſpective Suns of all other Syſtems; then alſo the Planets began to be enlightned, the Moon which rules our Night, and our whole Chorus beſides, as well as thoſe which belong to all other

with the reſt of the Stars, which he now made alſo, to take upon 'em the government of the Night; or ſee Dr. *Nichols*.

17, 18, 19. All theſe Bodies God placed at a convenient diſtance from the Earth, ſo as that they might beſt anſwer all thoſe particular ends in which he deſign'd they ſhould ſerve it: And this Work he alſo approv'd of, which was brought about by the concluſion of the next more conſpicuous Revolution.

17. *And God ſet them in the Firmament of Heaven to give light upon the Earth.*

18. *And to rule over the Day and over the Night; and to divide the Light from the Darkneſs: And God ſaw that it was good.*

19. *And the Evening and the Morning were the fourth Day.*

other fix'd Stars in the Expanſum. The fix'd Stars are Bodies of a more elaborate nature, and conſequently muſt require more time than the Planets in coming to their full perfection. They were ſomething collected on the firſt Day, ſo much as to emit the primary confus'd Light: and on the ſecond Day they tended more and more towards perfection, being able to aſſiſt in raiſing the Atmoſpheres in the Planets in their reſpective Syſtems; on the third they proceeded farther, and that to a conſiderable degree, ſo as not a little to aſſiſt in raiſing the Vegetables; and on this fourth Day they were finiſhed; they broke out into thoſe glorious Bodies we now find 'em, and from confus'd Lights, as they appear'd before, became moſt ſplendid, luminous, globular Syſtems.

20, 21. And after God had thus furniſh'd the Earth with Light, and Heat, and Vegetables, he began to ſtock it with Inhabitants; and in the firſt place with Fiſh and Fowl, which he brought into Being on the 5th Day, in great numbers, out of the Water and terreſtrial ſuperficial ſlime To the Fiſh he aſſign'd the Waters, and to the Fowl the Air for their Element; and of both

20. *And God ſaid, let the Waters bring forth abundantly the moving Creature that hath life, and Fowl that may fly above the Earth in the open Firmament of Heaven.*

21. *And God created great Whales, and every living Creature that moveth, which the Water brought forth abundantly after their kind, and every winged Fowl after his kind; and God ſaw that it was good.*

20, 21, 22, 23. On the fifth Day the Fiſh and Fowl came to perfection; they came in Embryo out of the Hands of God, who committed 'em to the warm Waters, to the ſuperficial ἰλύς, and to the now vehement Heat of the Sun to be perfected: And in ſuch a ſtate he created 'em, as that the Waters acquitted their charge on this Day's Revolution, they ſo nouriſhed

Fiſh and Fowl he brought abundance of divers Species into Being: And this Work he approv'd of as well as of the foregoing.

22. And when he had made 'em, he gave 'em his Bleſſing, a power of multiplication, or of propagating their Species by Generation; and that an extraordinary one, to the Fowls on the Earth and to the Fiſhes in the Seas.

22. *And God bleſſed 'em, ſaying, be fruitful and multiply, and fill the Waters in the Seas; and let Fowl multiply on the Earth.*

23. This piece of Work took up the ſpace of the next, or fifth Day.

23. *And the Evening and the Morning were the fifth Day.*

24, 25. And when God had made the Fiſh and Fowl, he proceeded on the ſixth Day to the formation of the terreſtrial Animals, which he made of innumerable Species; from the minuteſt Inſect to the greateſt Quadruped upon the Earth: To all which, as he had done to the work of the 5th Day, he gave the power, by Generation, of continuing their Species: And this piece of Work alſo had his approbation.

24. *And God ſaid, let the Earth bring forth the living Creature after his kind, Cattel and creeping thing, and Beaſt of the Earth after his kind; and it was ſo.*

25. *And God made the Beaſt of the Earth after his kind, and Cattel after their kind, and every thing that creepeth upon the Earth after his kind; and God ſaw that it was good.*

26, 27. And when the Earth was thus repleniſh'd, the Holy Trinity, as it were,

26. *And God ſaid, let us make Man in our image, after our likeneſs, and let them have do-*

nouriſhed, as to bring the Fiſh to perfection; the ſuperficial λυὸς too abounded with ſo many and ſuch warm *uteri*, as nouriſh'd, and hatch'd, and fledg'd the whole volatile Kingdom.

24. *&c. ad finem.* After the ſame manner was the terreſtrial Kingdom, the former part of the laſt Day's Work, brought to its full growth; and then Man was created, the Lord of the new Earth, and all its Furniture; and after the ſame manner may we believe the reſt of the Planets were furniſh'd, if they have any Furniture at all: And Man and other Animals God empower'd to propagate their Species; and gave 'em the Vegetables and their Product for their Food. Thus ended the Work of the ſixth Day, and

went to Council what ſort of a Creature they ſhould appoint Lord over it; and they concluded upon Man, whom they accordingly brought into Being; a Creature endow'd with an immaterial living Soul, and therein made in God's image; to whom was ſubjected in ſome ſenſe or other the whole viſible Creation, and therein he was made after the likeneſs of the Almighty: This Man was made Male and Female, as well as the other living Creatures.

minion over the Fiſh of the Sea, and over the Fowl of the Air, and over the Cattel, and over all the Earth, and over every creeping thing that creepeth upon the Earth.

27. *So God created Man in his own image, in the image of God created he him; Male and Female created he them.*

and therein the whole Creation was finiſhed, to the ſatisfaction of that great God who firſt made the Materials of it out of nothing, which from the commencement of their firſt Motion, were all along under the peculiar care and providence of infinite Wiſdom.

28. And God pronounc'd the ſame bleſſing upon Men, as upon all other Animals, that they might propagate their Species, the Man and the Woman, (who was created, tho' not directly nam'd in the foregoing Verſe, at this time, as is there imply'd) and be fruitful in Generation: He gave 'em alſo a Title to dominion over all the other Creatures which he had lately made.

28. *And God bleſſed 'em, and God ſaid unto them, be fruitful, and multiply, and replenish the Earth, and ſubdue it; and have dominion over the Fiſh of the Sea, and over the Fowl of the Air, and over every living thing that moveth on the Earth.*

29, 30. And God order'd Man for Food the Fruits of the Earth, and to Beaſts alſo he gave to eat of the ſame, from the largeſt

29. *And God ſaid, Behold I have given you every Herb bearing Seed which is upon the face of all the Earth; and every Tree in the which*

Quadruped to the leaſt terreſtrial Animal in Nature; and to the Fowl thro; to every thing upon the Earth wherein there is the breath of life.

is the Fruit of a Tree yielding Seed; to you it ſhall be for Meat.

30 *And to every Beaſt of the Earth, and to every Fowl of the Air, and to every thing that creepeth upon the Earth, wherein there is life, I have given every green Herb for Meat: And it was ſo.*

31. And God looked over and approv'd of all the Works of his Hands, and ceas'd from his Labours on the concluſion of the ſixth Day.

31. *And God ſaw every thing that he had made, and behold it was very good. And the Evening and the Morning were the ſixth Day.*

And now I have given you what Reaſons engage me ſtill to adhere to the *Moſaic* Creation in its vulgar Expoſition; the former of theſe Paraphraſes is the *vulgar Expoſition* in the ſtricteſt ſenſe; if we have therefore no reaſon to recede from it, it ought to be admitted; and that we have no ſuch reaſon, I think what I have offer'd in defence of it muſt convince us: It proceeds upon the ſuppoſition that God Almighty operated immediately in the formation of the World. This we have reaſon to believe. Indeed, till of late Years, it was embrac'd with the greateſt ſtrictneſs by all Mankind: They who deny it, can give no reaſon for it; at leaſt,

LET. 9. if any have attempted at any reaſon why they deny it, I have confuted their fancy'd Arguments: There is nothing in it which is irrational or abſurd. What the firſt Light was, we know not; but yet againſt its exiſtence, we can give no reaſon; Light before the Sun we cannot in reaſon look upon as an impoſſible thing: And as for the creation of all the Stars on one Day, while our Earth with its appurtenances took up the other five, for this I think I have given a very conſiderable reaſon; ſuch as not only vindicates, but even almoſt eſtabliſhes beyond exception *the moſt vulgar Expoſition.* That the whole World ſhould be made for the ſervice of Man, I have ſhewn to be no ſuch abſurd Suppoſition; and withal I have made it appear, that none is ſo really advancing of Piety as *the moſt vulgar Expoſition.* If theſe things will eſtabliſh it, *Moſes*'s Hiſtory muſt in all reaſon be literally interpreted; and certainly they carry ſuch Motives along with 'em to its eſtabliſhment, as muſt command its reception with all reaſonable Men; with all who admit that *cæteris paribus*, in matter of Hiſtory, the literal has moſt right to be look'd upon as the true Explication.

Or

Or if ſome will be fancying that ſecond Causes had a hand in the Hexaemeron, I have ſhew'd under my ſecond Head, that we know not ſo much of 'em as will vindicate our receding in the caſe before us from *the moſt vulgar Explication*, it may be conſiſtent with true Philoſophy notwithſtanding whatever we may fancy to the contrary. Indeed, in the ſenſe I have given of *Vulgar*, the ſecond Paraphraſe I have given of it gives a rational account of it, ſuppoſing ſecond Cauſes to have took place in the formation of things: It gives the beſt account I have ſeen for that Light which *Moſes* tells us appear'd on the firſt, and for the Days and Nights which ſucceeded one another till the concluſion of the fourth Day. It accounts for the Waters under the Firmament, and thoſe above it; for the draining of the Earth, and the formation of the Vegetable Kingdom; for the Work of the 4th Day, and thoſe of the fifth and ſixth, admitting ſecond Cauſes to have took place as much as poſſible in 'em; and all this receding as little as poſſible from *the moſt vulgar Expoſition*. The Principal innovation in it, is the ſuppoſition that all other Bodies, as well as our Earth, were in their formation from the beginning; whereas *Moſes* ſeems to ſay, that they LET. 9

LET. 9. were then made; and he no where ſays, that their proceſs in formation did not then commence. As to the creation of the Stars on the 4th Day, 'tis eaſily render'd conſiſtent with this Suppoſition; they then broke out into the form they are now in; and conſequently they were then properly made Stars. But I ſhall not proceed to juſtifie this Fancy; they who like it, may from theſe ſhort hints be enabled to defend it. I adhere to the other, as it is the more obvious of the two, and conſequently more agreeable to the apparent ſimplicity of *Moſes*'s Hiſtory. I am,

SIR,

Your obedient, humble Servant,

A. B.

LETTER

LETTER X.

SIR!

YOU are pleas'd to tell me in your laſt, that you deſign to communicate what I have advanc'd upon the *Moſaic* Creation, to the World: I don't know but that were it well done, it might be ſomething acceptable with thoſe that value *Moſes*: Neither can I ſay that, as it is, I have ſeen the Hiſtory of the Creation ſo fully vindicated; this encourages me with the leſs heſitancy to comply with your intentions. And as you deſire me to run over all the Letters, in order to ſee if I have any thing farther to ſay upon 'em in any particulars, in this I ſhall comply with you; and where I think any thing may be added to what I have already advanc'd, I will refer you to the place where, and add in this Letter what I think may farther be ſaid upon the matter. If I find any thing obſcure, I will endeavour to clear it; if any thing liable to be excepted againſt, I will anſwer what it may be charg'd with. This method of proceeding ſeems almoſt neceſſary in this way of Writing, where one part is ſuppos'd to follow another at ſome di-

LET. 10 ſtance of time; and conſequently, where 'tis very poſſible for ſome things to eſcape which might be amended upon a review; at leaſt, I fancy 'twill not be improper in the caſe before us; poſſibly upon ſecond Thoughts, I may find additions, enforcements, or enlargements upon ſeveral Particulars, requiſite in order to compleat the foregoing Letters.

In the firſt place then I doubt not but many will think that in my ſecond Letter I am too ſevere upon Philoſophy: But I believe what I there advance may ſafely be ſtood by; at leaſt, with relation to the *Carteſian*, and all other Syſtems which ſuppoſe the knowledge of the Eſſence of Matter: And all other Philoſophy too; excepting that which, after we have been a long time trifling with *Chimera's*, begins at laſt to be more generally attended to by the World; which brings Demonſtration along with it, and is in all reſpects conſiſtent with the eaſie and obvious Interpretation of holy Scripture. This therefore, what I advance upon that occaſion, is by no means levell'd againſt; which to avoid miſunderſtanding I think it expedient here to take notice of: Tho' I expreſs my ſelf in general terms, yet the Philoſophy I oppoſe includes not this which comes recommended with Demonſtration.

ſtration. Indeed, it need not be oppos'd; it is guilty of making no breach 'twixt Reaſon and Religion; but as whatever it pretends to, it performs beſt, ſo I know not of one tittle of it which in any reſpect prejudices *holy Writ.* LET. 10

In the fourth Letter I affirm, That the *Carteſian* Theory of Light may be ſhewn to be precarious upon a thouſand accounts; I there particularize at large upon none; here therefore it may not be amiſs to produce one Argument in order to its deſtruction. I aſſert then, That were the *Carteſian* Theory true, 'twere impoſſible for thoſe within a greater to ſee the central Bodies of leſs *Vortices*; ſuppoſing, with them, that the former revolve conſiderably faſter upon their own Axes, than the later; which *Theory* therefore muſt needs be falſe, as it evidently runs counter to daily experience. We ſee the *Moon* from the *Earth*, which yet, we know, is a far leſs Body; and the *Earth* moves far ſwifter than it upon its own Axis: We ſee a great many Stars of the ſmaller magnitudes within the vortex of our Sun; which yet, as far leſs Bodies, and not revolving ſo expeditely upon their own Axes, could not appear, were that Theory of Light true, deliver'd by the *Carteſians.* This I will attempt to ſhew in the *V.* Letter 4. *pag.* 59.

LET. 10 caſe of our *Earth* and the *Moon*; from whence we may *à pari* conclude what would infer of the Inviſibility, ſuppoſing the truth of that Theory, of the ſmaller fix'd Stars in any part of our Syſtem.

Taking it therefore for granted, that the diameter of our Earth is 7847 Miles, its circumference *(by the 2d of* Archimedes *de Cyclometriâ)* is 24649; and if its circumrotation upon its own Axis be in 24 Hours 24649 Miles, then a Body under the Line will move 1027$\frac{1}{24}$ Miles in an Hour, and 17$\frac{169}{1440}$ in a Minute: And as we have the ſpace which a Body upon the Surface of our Earth gives in a Minute in the place aſſign'd, ſo we may diſcover how much it will give in the ſame time in the correſponding parts of the Surface of our Atmoſphere: For, taking 30 Foot for the mean aſcent of Water in *Toricelli's* Tube, and taking it for granted that Water is to common Air as 850 to 1; 'tis hence evident, that 1 Foot of Water is equiponderant to 850 of common Air; and conſequently, as 1 Foot of Water gives 850 of common Air, ſo 30 will give 25500, the height of the Atmoſphere, ſuppoſing it to be at all diſtances in the ſame ſtate of compreſſion it is in nigh the Surface of the Earth; but this it

is

is not, but encreaſes in rarefaction the leſs LET. 10
the weight of the ſuperincumbent Atmoſphere; upon which conſideration, perhaps, 'twill be warrantable if inſtead of little more than $4\frac{3}{4}$ Miles we allow it 30; which if we admit of, then the Body aſſign'd would move on its Surface 24834 Miles, and a little more in 24 Hours; and conſequently, in an Hour it would go 1034, and in a Minute $17\frac{1}{4}$.

And as we have the ſpace through which a Body would move in a given time upon the Surface of the Atmoſphere of our *Earth*, ſo may we eaſily have it upon the Surface of that of the *Moon*; or ſuppoſing that ſhe has no Atmoſphere upon the Surface of her *Vortex*. The Moon's diameter is 2223 Miles, and conſequently its circumference 6982; ſo that if a Body upon the Surface of that Planet move 6982 Miles in 28 Days, in one it will move $249\frac{10}{28}$, in an Hour $10\frac{1}{2}$ and a little more, and in a Minute $\frac{11}{180}$ of a Mile, or $909\frac{1}{2}$ Feet. Taking which for granted, the next thing to be done, is, to determine the height of the Moon's Atmoſphere, or the extremity of its Vortex; which may not unwarrantably be done thus, or in this method of proportion: As the Globe of the Earth is to that of the Moon, ſo the extent of the

Vortex

LET. 10 Vortex of the former to that of the latter. Now the Globe of the Earth is to that of the Moon in a triplicate proportion of the diameter of the former to that of the latter, or as 7847 to a fourth Progreſſional to it ſelf and 2223, (by the 18th of the 12th of *Euclid*, if they are Spheres, or by the 33d of the 11th, apply'd to ſimilar Solids in general, if they are any other Species of ſimilar Solids) that is, as 7847 to 173, and a little more; and therefore as theſe are to each other, ſo is the extent of the Vortex of the Earth to that of the Moon. Upon which ſuppoſition, the height of the Atmoſphere, or Vortex of the Moon, is 3492 Feet, which being doubled, and added to the Moon's diameter, makes that of its Vortex 2224$\frac{1764}{5280}$ Miles; therefore the circumference of that Vortex is, throwing away the Fraction, inaſmuch as I need not in this Calculus be accurately nice, 6985 Miles: Therefore in the Surface of the Moon's *Vortex*, a Body moves 249$\frac{1}{4}$ Miles in a Day, a little more than 10$\frac{1}{2}$ in an Hour, and conſequently not much more than 909$\frac{1}{2}$ Feet in a Minute; ſo little as that I need not ſtand to take notice of it, the difference arifing only from the exceſs of the Fraction annex'd to the whole numbers which expreſs the motion of a Body in

in the Surface of the Moon's Vortex in a Day, above that annex'd to thoſe numbers which expreſs the motion of a Body in the ſame time upon the Surface of the Moon it ſelf: So that the motion of a Body upon the extream parts of the *Vortex* of our *Earth*, is to that of one in the ſame parts of the *Vortex* of the *Moon* as 91080 to 909$\frac{1}{2}$, or as a little more than 100 to 1. LET. 10

Now to apply what has been ſaid to the matter in hand: 'Tis evident that as the power of motion in a Body upon the extream parts of the Vortex of our *Earth* is to that of one in the ſame parts of the Vortex of the *Moon* as 100 to 1; ſo the motion communicated to the interjacent æthereal Matter will be proportional; and therefore it will be propagated thro' 99 parts of the ſpace 'twixt the *Earth* and the *Moon* during the time that the motion communicated from the *Vortex* of the *Moon* goes the remaining $\frac{1}{100}$; and whereas upon their rencounter the power of motion communicated from the *Earth* will exceed that from the *Moon* in the proportion alledg'd of 100 to 1; accordingly the Rays of Light making from the *Earth* to the *Moon*, will carry along with 'em, or force back again thoſe making from the *Moon* to the *Earth* in a degree of velocity equal to *is* former deducting that deſtroy'd by the renitency of the Rays from the *Moon*. Hence

LET. 10 Hence it appears, that were the *Carteſian* Doctrine of Light true, we could not poſſibly ſee the central Body of a leſs *Vortex* from off that of a greater, ſuppoſing the circumrotation upon its own Axis in the latter conſiderably greater than that in the former: That communication of motion, for inſtance, from the *Moon* to the *Earth* which is requir'd in order to let us ſee her, would be wanting; and conſequently, inaſmuch as there would be no action upon our exterior Organs, accordingly no new motion would be made in the *Senſory*, no new *Senſation* would be rais'd in the Soul. As certainly therefore as we ſee the *Moon* from the *Earth*; and as ſure as the Stars of the ſmaller magnitudes are viſible within the diſtrict of our *Solar Vortex*, ſo ſure it is that the *Carteſian* Theory of Light is defective; which was to be prov'd; and againſt what is here offer'd I know no material Exceptions which can be made.

V. Letter 6. *Page* 81, 82, 83. In the 6th Letter, I propos'd two *Problems* to be ſolv'd by the knowledge, from Monſieur *Romer* and the *Florentine* Virtuoſos, of the celerity of the propagation of Light and Sound; and after the ſame manner many other Problems of the like nature might be ſolved. Hence from the firing of the Guns we might know the diſtance

diſtance of a Ship, Fort, *&c.* or we might find the diſtance of any place where any thing is fir'd, and upon firing gives a report. The chief uſe of the former of the two Problems I hinted at when I mention'd the Problem it ſelf; and that the ſolution of the other may not be without its uſes too, I there briefly intimated, I ſhall here give one uſe of it which I think worth the naming. LET. 10

Suppoſing it therefore known, what time thoſe Spouts of Rain take in falling from Clouds of a known height in vehement Thunder-ſhowers; that is, ſuch where there is not the leaſt Wind. Hence we diſcover the velocity of the *perpendicular deſcent* of fluid Bodies; and if we once know this, 'tis eaſie to determine their velocity in any *Angle of Inclination*: I ſay, in any Angle of Inclination; inaſmuch as it is well known that they will not run on an *Horizontal Plane*. The *French* Mathematicians allow five Feet to a League, in order to make 'em move; that is, as upon calculation it appears, they require that the Plane on which Fluids will begin to run, be inclin'd at leaſt one Minute of a Degree to that of the *Horizon*: Knowing therefore what is the velocity of the *perpendicular deſcent* of Fluids, we may diſcover it in any given *Angle*

LET. IO *gle of Inclination* by this *Theorem, That if a heavy Body reſt upon an inclin'd Plane, being kept there in reſt by a power acting parallel to that Plane, the power which keeps it there will be to the weight of the Body in proportion as the Sine of the Angle of Inclination to the Radius.* This *Theorem* is demonſtrated by Mr. *Keill*; and by it, and the foremention'd Problem ſolv'd, we gain the Point requir'd.

V. Keill's Introd. ad Phyſ. pag. 170. *Theo.* 29.

For ſuppoſing that Body a Fluid, conſequently action and re-action being always the ſame, and therefore it having the ſame power to deſcend as is requir'd to keep it from deſcending, its power of deſcent on the *inclin'd Plane*, is to its weight or power of deſcent in a *perpendicular Line* as the *Sine* of the *Angle of the Inclination* of the Plane it deſcends in to *Radius*; and the velocity of Bodies being proportionable to their powers of deſcent, conſequently the velocity of the deſcent of Fluids in a Plane of a given *Inclination* is to that of their *perpendicular deſcent*, or falling in Spouts in the Thunder-ſhower given from the Clouds, as the *Sine* of the *Angle* of the *Inclination* of the given Plane to the *Radius*: Knowing therefore by the ſolution of the Problem alledg'd, the velocity of the deſcent of Waters from the Clouds, we are enabled

in

in general to ſolve all the poſſible caſes of this moſt pleaſant *Theorem*, how faſt they will run in any given *Inclination*; and the proportion for every aſſignable *Angle of Inclination* is this; *As Radius to the reſpective Sine of the Angle of Inclination, ſo the velocity of the perpendicular deſcent known to that requir'd in the given Angle of Inclination.* I need not give an inſtance to illuſtrate what is already ſufficiently clear. LET. 10

It may perhaps be wonder'd at by ſome, that without attempting to prove it in the *Philoſophic Explication* of the Hiſtory before us, I reckon the Earth a Planet: I ſhall therefore take ſome notice of this particular here; and ſhew that we have all the reaſon in the World to believe both its *annual* and *diurnal* Motion; the former in a Year about the Sun, the other in a Day's circumrotation upon its own Axis.

Its annual Motion Mr. *Whiſton*, in the 6th *Corollary* to his 23d *Lemma*, thinks he has demonſtrated; and indeed, they who underſtand the Laws of Gravitation, muſt look upon what he there offers as a conſiderable Argument: It is alſo, in my opinion, put beyond queſtion by Mr. *Flamſtead*'s moſt accurate Obſervations. 'Tis objected by *Riccioli*, and others, That

were

LET. 10 were this Doctrine true, one might expect a *Parallax* of the *Orbis Magnus*, by the acceſs or receſs of a given fix'd Star to or from the Pole of the World at different times of the Year; which, tho' it is not neceſſary upon ſuppoſition of the Earth's annual motion, inaſmuch as the diameter of the whole *Orbis Magnus* may be next to nothing in compariſon of the ſtupendous diſtance of the fix'd Stars; yet if it is found, it is look'd upon as a demonſtration of the annual motion of the Earth; and that the learned Mr. *Flamſtead* has found it, he aſſures us in a Letter to Dr. *Wallis*, dated *September* the 20th 1698. He found the diſtance of the Pole Star from the Pole of the World greater at the Summer than at the Winter Solſtice, by 40 or 45 Seconds; and that conſtantly, making all due allowances, in ſeven Years ſucceſſive Obſervations.

V. Wallis's Op. Math. Tom. 3.

And as this is admitted of as an evidence of the Earth's annual motion by moſt, (tho' the learned Dr. *Gregory* ſeems to reject it, for a Reaſon which he aſſigns in his excellent *Aſtronomy*) ſo I think its circumrotation upon its own Axis is no leſs than demonſtrable: What I think a demonſtration of it, be pleas'd to take after the following manner.

V. Gregory's Aſtron. lib. 3. pr. 55. p. 876.

'Tis

'Tis a well known *Phænomenon*, That LET. 10
the *Gravitation* of Bodies upon the Surface of the Earth is different, according to the reſpective Latitudes where they *gravitate*. This is matter of fact, as has been very often found by the vibrations of *Pendulums*. It was diſcover'd by Monſieur *Richer*, who was ſent by the *French* King to the Iſland of *Cayen*, (Lat. 5. Deg.) where he found by repeated obſervations that a *Pendulum* vibrating Seconds there, was $\frac{1}{10}$ of an Inch ſhorter than one vibrating Seconds at *Paris*. This Experiment was confirm'd afterwards by more *French* Miſſionaries; and by our Mr. *Halley* at the Iſland of S. *Helena*; and is now univerſally admitted of as infallibly true. Now from this difference in the vibrations of *Pendulums*, the different *gravity* of Bodies in different Latitudes is demonſtratively collected; for the time a Body takes in deſcending through the arch of a *Cycloid* being to that it would take in deſcending through its Axis in a given proportion, as $\frac{1}{2}$ of the circumference of a Circle is to its diameter; if the ſame *Pendulum* take different times in vibrating its *Cycloid* in different degrees of Latitude, then the times which a Body would take in deſcending through the Axis of that *Cycloid* in different Latitudes, will be different;

LET. 10 that is, the power of *Gravitation* will vary, for that is as the time of the deſcent of a Body through a given ſpace: And inaſmuch as a *Pendulum* muſt be ſhorter to vibrate Seconds at *Cayen* than at *Paris*, therefore were it of the ſame length, it would at *Cayen* take up more than a Second in each vibration; therefore a Body would be longer in falling through its Axis there than at *Paris*, and conſequently the *gravity* of Bodies in theſe places is different, leſs at *Cayen* than at *Paris*; and it is found to be univerſally greater according to the increaſe, and leſs according to the decreaſe of the degrees of Latitude; leaſt under the Line, and greateſt at the Poles.

Now 'tis demonſtrated by the excellent Mr. *Newton*, that in the preſent frame of Nature *Gravitation* is a neceſſary intrinſic affection of all Matter; that we can no more ſuppoſe a portion of Matter which does not *gravitate*, if we will ſuppoſe conſiſtently with the nature of things, than we can imagine a Particle which is not extended; the preſent conſtitution of our Organs of Imagination for ever forbids the later; and the known *Phænomena* of Nature are abſolutely inconſiſtent with the former; and as all the Particles of each Body which falls upon it act upon our Earth, ſo *vice versâ* our Earth returns

returns the action upon the Body which LET. 10
falls upon it; as our Earth draws the descending Body towards it, so *vice versâ* the descending Body *re-attracts* our Earth towards it; our Earth goes to meet it, if we may so speak; and the motion of our Earth in the case is to that of the descending Body, as the magnitude of the descending Body is to that of the Earth; for then their *momenta* are equal, that is, the motion into the magnitude of the descending Body is equal to the magnitude into the motion of the Earth, in four *Geometric Progressionals*, the right Angle under the *Means* being equal to that under the two extreams: For instance, Let a Body of 300000 cubic Feet fall 15 Foot to the Earth in a Second of time, the whole Globe of the Earth containing 3000000000000000000000 cubic Feet; let the Body descending be of the same density with the mean density of the Body of the Earth; and as the Body moves towards the Earth 15 Feet in the time assign'd, so *vice versâ* the Earth will move towards the Body $\frac{45}{3000000000000000}$ of a Foot in the same time: Which is indeed prodigiously little, and what is almost infinitely far from being sensible; but yet it is not so little, but that it ought in strict-

LET. 10 neſs to come under Mathematical conſideration.

Granting therefore that *Gravitation* is an intrinſical affection of every the leaſt Particle of Matter, conſequently if there is no extraneous impediment, a Body will be in all Latitudes upon the Earth of the ſame weight; as conſiſting of the ſame number of Particles, it will every where alike act, and be *re-acted* upon: Whereas the caſe being otherwiſe, therefore we muſt conclude that there is ſomething external which cauſes a variety: Therefore we are ſure that Something Foreign produces the known difference in the *gravitation* of Bodies in places different with reſpect to Latitude upon the face of the Earth.

That Something Foreign I aſſert to be the Earth's diurnal Revolution upon its own Axis: *This will account for it, and nothing elſe within the whole compaſs of Nature will:* Therefore as ſure as there is ſuch a thing as diverſity of *Gravitation* in the ſame Body in different Latitudes, ſo certain it is that the Earth revolves every Day upon its own Axis; after I have prov'd that the Earth's circumrotation will account for the Phænomenon before us, and that nothing elſe will

will, I ſuppoſe the inference I would make will be paſt all doubt. LET. 10

And the former, that the Earth's diurnal circumrotation will account for the preſent *Phænomenon* of difference in *Gravitation*, I prove thus. By the firſt of Monſieur *Huygen's de Vi Centrifuga, & Motu Circulari*, "If two equal Bodies run "through unequal circumferences in the "ſame or equal times, that which runs "through the greater circumference will "have a *Vis Centrifuga* to that which runs "through the leſs in proportion as are "the Circles or Diameters of thoſe Circles through which they run. This noble *Theorem*, tho' propos'd without a demonſtration by Monſieur *Hugens*, is demonſtrated by the ingenious Mr. *Keill*. Suppoſing therefore the Earth to turn upon its Axis, Bodies under the Line will have a greater *Vis Centrifuga* than thoſe 'twixt it and either of the Poles: From the Line to each Pole, all the Bodies on the Earth run their reſpective Circuits in the ſame time; but then their Circles are unequal, the *Equatorial* has the *Radius* of a great Circle of the Earth for its Semidiameter, all the others have only *Co-Sines* of Latitude, the greateſt of 'em leſs than the former, and all of 'em decreaſing as the *Sines* of Latitude increaſe;

V. Hug. de Horolog. Oſcillat. ad Calcem.

V. Keill's Introd. ad Phyſ. ad Calcem.

LET. 10 and having leſs Circles to run, conſequently their *Vis Centrifuga* muſt be leſs; in proportion from the Line to each Pole as the *Co-Sines* of whatever Latitudes we ſuppoſe Bodies to move in to the *Equatorial* Diameter as *Radius*; and if from the Line to each Pole the *Vis Centrifuga* of Bodies decreaſes in the proportion aſſign'd, inaſmuch as this *Vis Centrifuga* muſt of neceſſity take off in proportion to its quantity from the abſolute *gravity* of Bodies, conſequently here we have a reaſon why Bodies weigh leaſt under the Line, becauſe there the *Centrifugal Force* is greateſt; and why they encreaſe in weight as we recede from the *Equator*, becauſe the *Vis Centrifuga* decreaſes, and that in the proportion aſſign'd.

Thus it is demonſtrated, that the Earth's diurnal circumrotation upon its own Axis will account for the *Phænomenon* before us; and that nothing elſe in Mechaniſm will, is a truth which does not require much proving; for there is nothing elſe which can have any effect in the caſe beſides what I contend for, but the diverſity of the *medium* the Bodies gravitate in; whereas this is ſo far from being able to produce the *Phænomenon* aſſign'd, as to make directly for the contrary: The Air is finer the higher we come

come to the Equator, Bodies therefore ought to be ſpecifically heavier the more we recede from the Pole; which is the reverſe of Experience; and therefore 'tis evident, even to demonſtration, that the *Phænomenon* before us is the reſult of the circumrotation of the Earth upon its own Axis; and the Earth as certainly has ſuch a circumrotation, as the *Phænomenon* hitherto inſiſted upon is true. LET. 10

Againſt what has been offer'd, poſſibly ſome may object that the *Phænomenon* before us ariſes from this known property of *Gravitation*, that it encreaſes the nigher the Bodies gravitating approach the Centre of the Earth; and the Earth being an *oblate Sphæroid*, (or a Solid which we may conceive to have been generated by a Semi-Ellipſis revolving upon its ſhorter Axis) whoſe ſhorteſt Diameter is its Axis, and the longeſt its Equatorial Diameter, and conſequently whoſe ſuperficial Parts are higheſt under the Line, but decreaſe gradually in height from thence to the Poles; therefore tho' the Earth ſtand ſtill, the *gravity* of Bodies will encreaſe from the Equator to the Poles as they come nigher the Centre; and the Poles being nigheſt to it, conſequently they will there be heavieſt: Whereas in anſwer to this it may be obſerv'd, That

LET. 10 the reaſon why Bodies *gravitate* more the nigher they are to the Centre, is nothing elſe but the circumrotation of the Earth upon its Axis; the nigher they are to the Centre, the leſs are the Circles which they have to run, and conſequently the leſs their *Centrifugal force*, which as it decreaſes, their *gravity* muſt of courſe increaſe; nay, the demonſtration of this increaſe of *gravity* in Bodies, the nigher they come to the Centre, proceeds upon the ſuppoſition of the diurnal motion of the Earth. They therefore who admit of this property, muſt allow the Earth a diurnal motion upon its Axis; and conſequently, this property can't be brought as an Objection againſt ſuch a Motion; unleſs it be to infer the Non-exiſtence of a thing, to bring that for an evidence againſt it which neceſſarily concludes the exiſtence of that thing; which is ſuch Logic as none can be guilty of who think. Nay, the *Sphæroidical* Figure of the Earth ſuppoſes alſo its motion upon its own Axis: So ſays Dr. *Gregory* in his *Aſtronom. Phyſ. & Geomet. Element. lib.* 1. *Schol. ad Prop.* 31.

V. Gregory's Aſtronomy, p. 268, 269.

And now having given my reaſons why I reckon our Earth among the Planets, I make no doubt but it will be ask'd me, Why I don't look upon the reſt in

our

our Syſtem as Habitable, and inhabited as well as it? I anſwer, becauſe I have not yet ſeen ſufficient reaſon for doing it: Not that I deny but that they may be Habitable, and inhabitated, becauſe I don't know but that they are both; neither for a like reaſon can I aſſert that they are either, inaſmuch as I know nothing of the matter: The Arguments which make moſt for theſe Fancies, are, in my opinion, the leaſt concluſive of any; they infer no more than the loweſt degree of probability of the matter, and may very eaſily and fairly be anſwer'd with a *Probably it may be otherwiſe*; and ſo with relation to the certainty or uncertainty of the Habitability of the Planets, we are, after all that can be ſaid for the former, altogether where we were. LET. 10

Thus may this difficulty be got over; but I have a far greater to ſtruggle with if I will defend what I propoſe in my ſeventh Letter, That the whole viſible Creation was made for the ſervice of Man. 'Tis impoſſible for ſome Men to conceive how it can conſiſt with infinite Wiſdom to make ſuch a vaſt *Apparatus* for themſelves and the reſt of the puny Race of Mankind, plac'd in ſuch a dirty little Planet as our Earth; for a few Beings of no very great conſideration, thruſt into, perhaps, *V.* Letter 7. p. 105, 106.

LET. 10 haps, the moſt abject corner of the whole Univerſe: And in order to let us ſee the more into the difficulty, they take us from off the Dunghil we are ſo fond of, and carry us into the Regions of the Starry Heavens, and ſhew us the glory of 'em; there they tell us are to be ſeen infinite numbers of Suns as beautiful as our own, plac'd at prodigious diſtances from each other, with primary and ſecondary Planets revolving about 'em, and they with as great a harmony and regularity as we obſerve in our Syſtem. How prodigiouſly diſtant they are from us, we may conceive from hence, that the Diameter of our whole *Orbis Magnus* is but as a point in reſpect of the diſtance of thoſe of 'em which are fancy'd nigheſt; and yet the Diameter of our *Orbis Magnus* is at leaſt 108000000 Miles. To come therefore ſomething towards an apprehenſion of the vaſt diſtance of the nigheſt fix'd Stars, let us ſuppoſe (more than it is) the Diameter of our *Orbis Magnus* the right Sine of a Minute in that prodigious Circle whoſe Radius is the diſtance of the nigheſt fix'd Star from us; which let us make of 1 part: Therefore as Sine of 1', —6, 463726 : to Side 1 part, —0, 000000 : : ſo Radius, 90 *deg.* — 10, 000000 : to Side — 3, 536274 the abſolute number of

of which *Logarithm* is ſomething more than 3437; and therefore the diſtance upon this ſuppoſition of the higheſt fix'd Star from us is 3437 times the Diameter of our *Orbis Magnus*, or 37196000000 Miles: I ſay, upon ſuppoſition that our *Orbis Magnus*'s Diameter is equal to the right Sine propos'd; but this it is not in the opinion of the very beſt Aſtronomers, who look upon it as an inſenſible point in compariſon of the diſtance of the higheſt fix'd Stars; ſo that we know not how little proportion it has to the right Sine ſuppos'd, and therefore the diſtance of the Star aſſign'd may be ſome thouſands of times more than this Calculus makes it; and if the higheſt are thus remote, what muſt we think of the farthest? If our Syſtem is thus diſtant from that which is higheſt it, is it not reaſonable to ſuppoſe that many of the reſt are at a prodigious diſtance from each other? How then can it be conceiv'd, ſay they, that theſe infinite numbers of *Syſtems*, in other reſpects altogether as magnificent as ours, ſhould be created for no other end but to twincle a little Light to us in clear Evenings? Be made of ſuch Bigneſſes that they might be able to ſhew themſelves at their reſpective vaſt diſtances? and be plac'd at ſuch diſtances that they may not

LET. 10

V. Gregory's Aſtronom. p. 276.

(as

LET. 10 (as they would, if conſiderably nigher us) do us more miſchief than good? Is it not infinitely more reaſonable to believe that the Planets in each Syſtem have their reſpective Inhabitants, and that as our Sun is to us, ſo their reſpective fix'd Stars are to them? At leaſt, if we will not allow each Planet in every Syſtem in the World its Inhabitants, let one Planet in each Syſtem be furniſh'd; and to its Inhabitants let the Syſtem it is in be of more immediate uſe: This at leaſt we are ſure of in that Syſtem we are fix'd in; and this we have the ſtrongeſt reaſon imaginable to conclude of all the reſt in the World.

In anſwer to which it may be ſhewn, That all that is thus ſpeciouſly urg'd, is not ſufficient whereon to build the deſir'd Concluſion. Man, however ſome are pleas'd to vilifie him, is certainly in the Eye of God a very noble Being! This, as I have already hinted, is demonſtrated beyond exception, by the wonderful method of our Redemption; and for any thing can be ſaid to the contrary, he is fix'd in one of the moſt beautiful places in the whole Creation: To call our Earth a *dirty Planet*, is no diſparagement to it; in many places the Inhabitants wiſh it were dirtier than it is; and as far as we can conceive, all the reſt muſt be dirty too,

if

if they are Inhabited; and if variety of *Phænomena* be a token of Beauty, our Earth is certainly more beautiful than the Sun, or any fix'd Star in the Creation: For whereas there is nothing to be met with in them but Heat and Light, and they conſtantly the ſame, without the leaſt alteration; here we have a conſtant ſucceſſion of thouſands of beautiful *Phænomena* which ſucceed each other every Day, and are the daily delight and admiration of the wiſer part of Mankind; the Sun and Stars are made up of one ſimple ſort of Materials; whereas there are lodg'd in the Body of our Earth infinite diverſities of Bodies, as well beautiful as beneficial, together with the Seeds of thoſe greater and ſmaller Vegetables, which, when brought to perfection, are ſuch an Ornament to this lower World. 'Tis true, our Earth is beholding for the appearance of moſt of its *Phænomena* to the influence of the Sun; but then this no more argues the Sun more valuable than the Earth, than Man's being beholding in ſome meaſure to Books for his Improvement, argues them more valuable than the human Soul: The Sun is an Inſtrument made uſe of in order to the Earth's Improvement; and Books are inſtrumental in the Improvement of human Soul; LET. 10

LET. 10 Soul; not that they are therefore the more valuable than what they have a hand in improving; Books furniſh out ſome general Rules which it is the excellency of the Mind which receives 'em to refine upon, and digeſt, ſo as to make 'em ſerviceable to the ſeveral Exigencies of Life; and the Sun affords thoſe Rays to the Earth in their firſt ſimplicity, which are made uſe of by the Earth to thouſands of different ends and purpoſes; and which not one Body receives but it ſo ſeparates and ſorts 'em as to return what came upon it as it were *in the Ore* in ſome one of thoſe Colours which in their preſent viſible diverſity are one of the greateſt Glories of Nature. Let us ſuppoſe then, notwithſtanding what has been ſaid, that this noble Creature, Man, is plac'd in the moſt beautiful part of the *Solar Syſtem*, it will eaſily be granted that this *Syſtem* may have been created for his ſole uſe; it is all uſeful to him; and God has done greater things than it comes to for him; and as for the remaining parts of the World, conſiſting of that almoſt infinite number of Stars which are diſpers'd far and wide in the Heavens, How do we know that there are any Planets amongſt them, the Habitations of unſeen and unknown Species of Beings? We have found none

none but what are in our Syſtem, and therefore we go beyond our knowledge in aſſerting ſuch things. LET. 10

As to the prodigious number of Stars, they *declare to us the glory of God*; and the *Firmament* they are fixt in moſt illuſtriouſly *ſheweth his handy work*: If this influence us ſo as to prevail with us to pay due adoration to the God of Heaven, it is a ſufficient reaſon for his creating 'em: An immaterial Soul is of infinitely more real value than the whole viſible Creation; the ſaving therefore one ſuch Being from deſtruction, is a ſufficient end of the creation of never ſo large and glorious a material World; much more muſt we allow it a ſufficient end of its creation, that it is highly ſerviceable to the Salvation of not only one Soul, but even of many millions; for many, 'tis to be hop'd, have from the conſideration of the greatneſs and beauty of *the things which are ſeen*, fram'd ſuch noble and charming Ideas of *that God who is not ſeen*, as have been no inconſiderable motive to prevail with 'em to look up to Heaven, and endeavour to reconcile themſelves with that great God from whom cometh Salvation. Beſides which moral end, there are not wanting conſiderable natural ones, why all the viſible

DET. 10 ſible Creation ſhould be made for the ſervice and benefit of us alone. I have already inſtanced in Navigation; and we know there are Countries where the Stars are of conſiderable ſervice to Land Travellers: In both which caſes 'tis very eaſie to account for the creation of all the Stars in the Firmament: When ſome are cover'd with Clouds, others by reaſon of their number and ſituation are very often viſible, by which Obſervations may be made; and becauſe were there but a few, and they not every where diſpers'd, they would be ſooner cover'd, and leſs advantage would be made of 'em, therefore God created a great many, and plac'd 'em every where in the two Hemiſpheres, that when ſome were cover'd, others might in other places ſhew themſelves. Thus may we be ſatisfy'd, that all the viſible Creation either is or may be ſerviceable to us; it certainly may ſerve to conſiderable ends in morality, as from the beauty and extent of the Creation, we are enabled to frame ſuitable Ideas of the God of Heaven, and nothing being a greater motive to Adoration than a right ſenſe of the infinite power and excellency of the Being we are to adore: It does ſerve conſiderable ends in our preſent Life, principally in the inſtance of Navigation; which

which what a vaſt advantage it is to the People who moſt cultivate it, we may learn both at home and from ſome of our Neighbours. That it is therefore a great ſervice which the whole viſible World does us, we are ſure; and, as large as it is, that it is conſiſtent with God's infinite Wiſdom to have created it for our ſole ſervice we plainly ſee; and as to ſome parts of it being immediately ſerviceable to other kinds of Creatures, we know nothing of the matter. We may therefore, I think, very ſafely and reaſonably believe that our infinitely good God brought the whole viſible World into Being for our ſole ſervice; at leaſt, till we hear from him that there are ſo many thouſands of different kinds of Beings as are fancy'd which ſhare in the benefits which accrue from it as well as our ſelves. LET. 10

To what I offer, Letter the 9th, in favour of *Adam*'s having his Language communicated to him by God Almighty, it may not be much out of the way to add, That he had the knowledge of the whole World about him immediately after his Creation after the ſame manner: That he came out of the hands of his Maker both Maſter of a Language, and in perfect knowledge of the World

LET. 10 he was newly made Lord of. 'Tis true, this Doctrine will by no means go down with the *Socinians:* But as much as they boaſt of it, they are not the only Men of Reaſon; and I think they fail in nothing more ſhamefully than in their Sentiments of the firſt knowledge of *Adam*. Remarkable are the words of the late moſt learned Biſhop *Stillingfleet* upon the firſt knowledge of *Adam*; ſome of which I ſhall take leave to tranſcribe upon this occaſion: "If we take a view (ſays he) "of Man's knowledge as it reſpects his "Fellow-creatures, we ſhall find theſe "were ſo fully known to him on his firſt "creation, that he needed not to go to "School to the wide World to gather up "his conceptions of 'em; for the right "exerciſe of that Dominion which he "was inſtated in over the inferiour World "does imply a particular knowledge of "the Nature, Being, and Properties of "thoſe things which he was to make uſe "of, without which he could not have "improv'd 'em for their peculiar ends: "And from this knowledge did proceed "the giving the Creatures their proper and "peculiar Names, which were expreſſive "of their ſeveral Natures: — For it's more "agreeable to Reaſon, that Names ſhould "carry in 'em a ſuitableneſs to the things "they

V. Stillingfleet's Origines Sacræ, l. 1. p. 3. Edit. 7.

" they expreſs; for Words being for no LET. 10
" other end but to expreſs our Concep-
" tions of things; and our Conceptions
" being the reſemblances and repreſenta-
" tions of things, it muſt needs follow
" that where there was a true knowledge
" the Conceptions muſt agree with the
" things; and Words being to expreſs
" our Conceptions, none are ſo fit to do
" it as thoſe which are expreſſive of the
" ſeveral Natures of the things which
" they are us'd to repreſent; for other-
" wiſe, all the uſe of Words is to be a
" mere Vocabulary to the Underſtanding,
" and an Index to the Memory; and of
" no farther uſe in the purſuit of know-
" ledge, than to let us know what Words
" Men are agreed to call things by: But
" ſomething farther ſeems to be intended
" in their firſt impoſition; whence the
" *Jews* call it, as *Mercer* tell us, a ſepara-
" tion and diſtinction of the ſeveral kinds
" of things: And *Kircher* thus paraphra-
" ſes the words of *Moſes*, and whatever
" *Adam* call'd every living Creature, that
" was the Name thereof: *Fuerunt illis*
" *vera & germana nomina, & rerum na-*
" *turis proprié accommodata.* But however
" this be, we have this farther evidence
" of that height of knowledge which muſt
" be ſuppos'd in the firſt Man, That as

DET. 10 " he was the firſt in his kind, ſo he was " to be the Standard and Meaſure of all " that follow'd; and therefore could not " want any thing of the due perfection " of human Nature,

Now as in theſe words we have three conſiderable Arguments in favour of *Adam*'s being created in all reſpects in Perfection, in oppoſition to the wild Conceits of him maintain'd by the *Socinians*; ſo the laſt more directly proves what I contend for againſt Dr. *Nicholls*; That he had a Language as ſoon as he was created: He was the Standard of the whole Race of Mankind as ſoon as he was created, and that ſuch as none who follow'd him ever came up to, having more in him of the image of God, than any who follow'd after him: Whereas, as he was a Standard of the Kind, he was a perfect Man; and if he was a perfect Man, he was Maſter of a Language; and being the Standard of the ſubſequent Race of Mankind, as ſoon as he came into Being, conſequently he was at the ſame time a perfect Man, and Maſter of a Language: elſe, had he been a true Standard when he came out of his Maker's Hands, and yet Dumb; ſo ought the *Copies* to have been as well as the *Original*: Whereas the whole Race of Mankind being now Maſters

ſters of Language, conſequently of neceſ- LET. 10
ſity he who came out of the Hands of his
Maker the abſolute Standard of his Kind,
had a Language at that time.

And now I have *added*, *enforc'd*, and *enlarg'd* what I think moſt material in order to the compleating of the Letters you have had from me upon the *Moſaic Hiſtory of the Creation of the World*; and with theſe *Additions*, *&c.* I commit 'em to your pleaſure. If they fully vindicate *Moſes*, I can't ſay that their publication will be to no purpoſe; if otherwiſe, they will be of ſome ſervice ſtill, if they put any abler Pen upon re-aſſerting *Moſes*'s right to a plain and ſimple conſtruction, after ſome Men have ſo ſhamefully abus'd him. I ſhall only in two words add, That you may if you pleaſe fancy that the Seminal Principles of Animals and Vegetables began to be form'd then when *the Spirit of God* is ſaid to *move upon the face of the Waters*; and this may be apply'd to my Philoſophic Explication, ſo you conceive the diviſion of the *Chaos* before their formation commenc'd. The firſt Light in the moſt vulgar Expoſition you may fancy a portion of hot luminous Matter made to move about the Earth, till the creation of the Sun, in order to haſten its perfection. Theſe two Notions

I find

LET. 10 I find in the excellent Commentary of the Lord Biſhop of *Ely*; in which alſo I find ſome hints of ſeveral Particulars I advance; which therefore I the more value, tho' I had not the leaſt of 'em from him, having not ſeen his Commentary of ſeveral Years before I writ to you the firſt upon this ſubject: I remember I quoted him to you once before, but it was from Mr. *Whiſton*, having not had the happi- of his Book till almoſt now. I am,

V. Biſhop *Patrick* on *Gen.* cap. 1. pag. 6, 9.

SIR,

Your obedient, humble Servant,

A. B.

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